US011917251B2

(12) **United States Patent**
Dhanwal et al.

(10) **Patent No.: US 11,917,251 B2**
(45) **Date of Patent: Feb. 27, 2024**

(54) **SYSTEMS AND METHODS FOR PREDICTIVE SELECTION OF PAUSE POINTS**

(71) Applicant: **Rovi Guides, Inc.**, San Jose, CA (US)

(72) Inventors: **Ishan Dhanwal**, Haryana (IN); **Simranjeet Gill**, Punjab (IN); **Anjum Makkar**, Punjab (IN); **Vivek Sehgal**, Uttar Pradesh (IN); **Reda Harb**, Bellevue, WA (US)

(73) Assignee: **ROVI GUIDES, INC.**, San Jose, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/504,007**

(22) Filed: **Oct. 18, 2021**

(65) **Prior Publication Data**

US 2023/0119713 A1 Apr. 20, 2023

(51) **Int. Cl.**

H04N 21/472	(2011.01)
H04N 21/433	(2011.01)
H04N 21/45	(2011.01)
H04N 21/845	(2011.01)
H04N 21/6587	(2011.01)
H04N 21/442	(2011.01)

(52) **U.S. Cl.**

CPC ... ***H04N 21/47217*** (2013.01); ***H04N 21/4333*** (2013.01); ***H04N 21/44222*** (2013.01); ***H04N 21/4532*** (2013.01); ***H04N 21/6587*** (2013.01); ***H04N 21/8456*** (2013.01)

(58) **Field of Classification Search**

None

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,501,902	B1	12/2002	Wang	
7,992,163	B1	8/2011	Jerding et al.	
8,793,582	B2	7/2014	Johansson et al.	
9,294,799	B2	3/2016	Thomas et al.	
2002/0129368	A1*	9/2002	Schlack	H04N 21/44016 348/E7.071

(Continued)

FOREIGN PATENT DOCUMENTS

WO	2019084181	A1	5/2019

OTHER PUBLICATIONS

International Search Report and Written Opinion dated Feb. 27, 2023 in connection with PCT Application No. PCT/US2022/077976.

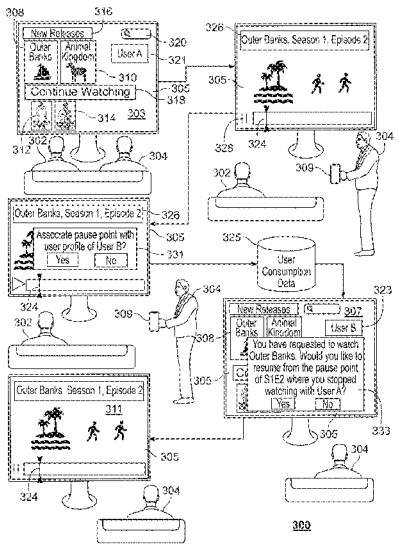
Primary Examiner — Heather R Jones

(74) *Attorney, Agent, or Firm* — HALEY GUILIANO LLP

(57) **ABSTRACT**

Systems and methods are described for determining that a plurality of user profiles, stored in the memory, are associated with an account of a media application; generating for presentation a media asset during a first consumption session associated with the account; generating for presentation a selectable option to associate a current progress point of the media asset with one or more of the plurality of user profiles associated with the account; receiving a selection of one or more of the plurality of user profiles via the selectable option; during a second consumption session, receiving a request for accessing the media asset; and in response to determining that the second consumption session is associated with the selected one or more user profiles, resuming the media asset from the progress point associated with the selectable option.

20 Claims, 11 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

2004/0008970	A1	1/2004	Junkersfeld et al.	
2006/0136496	A1*	6/2006	Ohashi	H04N 7/163
2008/0092156	A1*	4/2008	Ferrone	H04H 60/33 725/9
2013/0034338	A1*	2/2013	Ueno	G11B 27/105 386/262
2016/0029057	A1	1/2016	Wickenkamp	
2020/0296469	A1	9/2020	Wittke	
2021/0136447	A1*	5/2021	Daw	H04N 21/8549
2023/0121443	A1	4/2023	Dhanwal et al.	

* cited by examiner

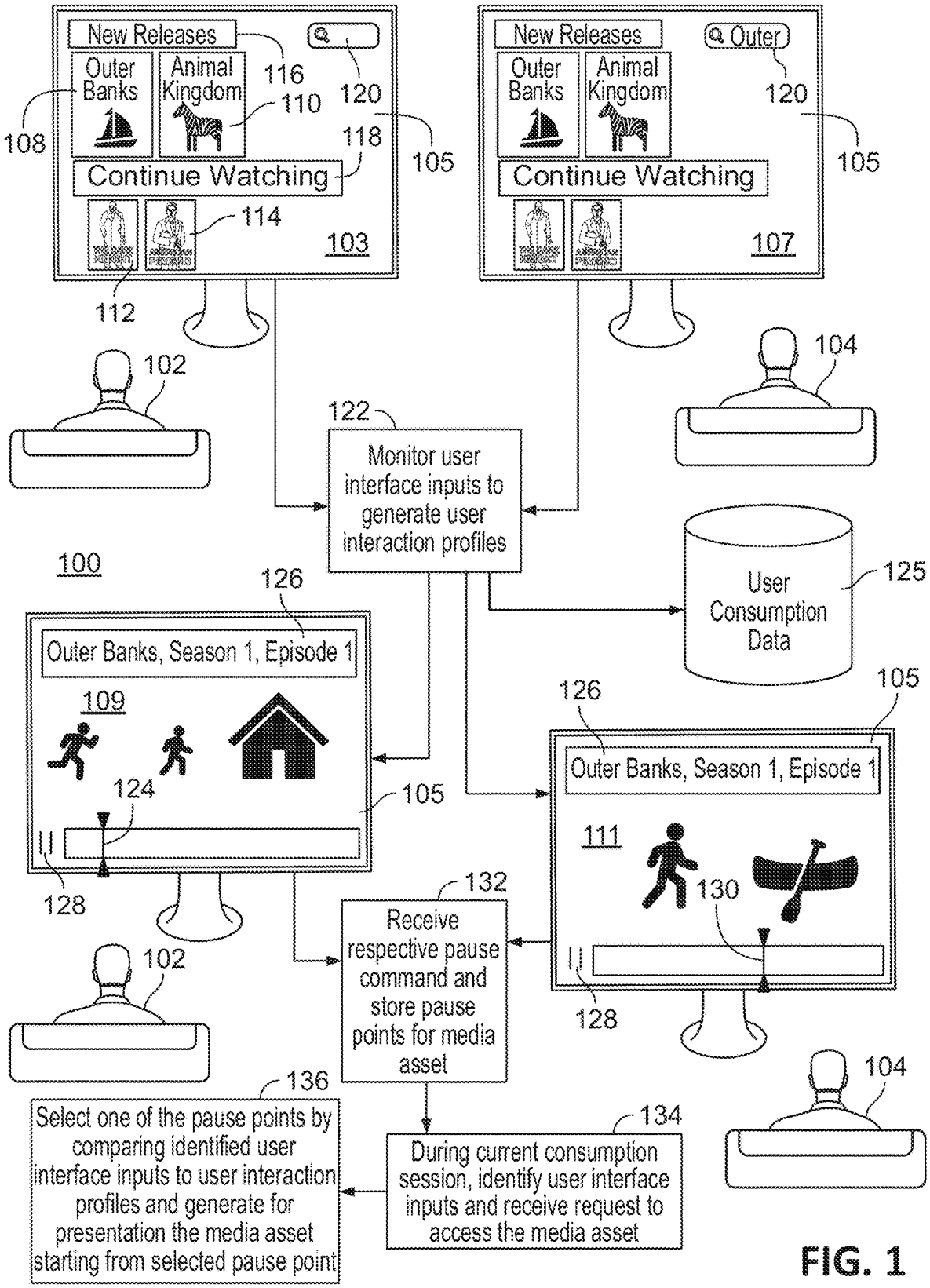

New Releases
Outer Banks
Animal Kingdom
Continue Watching
116
120
110
118
108
105
114
103
112
New Releases
Outer
Outer Banks
Animal Kingdom
Continue Watching
120
105
107
102
104
122
Monitor user interface inputs to generate user interaction profiles
100
126
Outer Banks, Season 1, Episode 1
109
124
105
128
User Consumption Data
125
126
105
Outer Banks, Season 1, Episode 1
111
130
128
132
Receive respective pause command and store pause points for media asset
102
104
136
Select one of the pause points by comparing identified user interface inputs to user interaction profiles and generate for presentation the media asset starting from selected pause point
134
During current consumption session, identify user interface inputs and receive request to access the media asset

FIG. 1

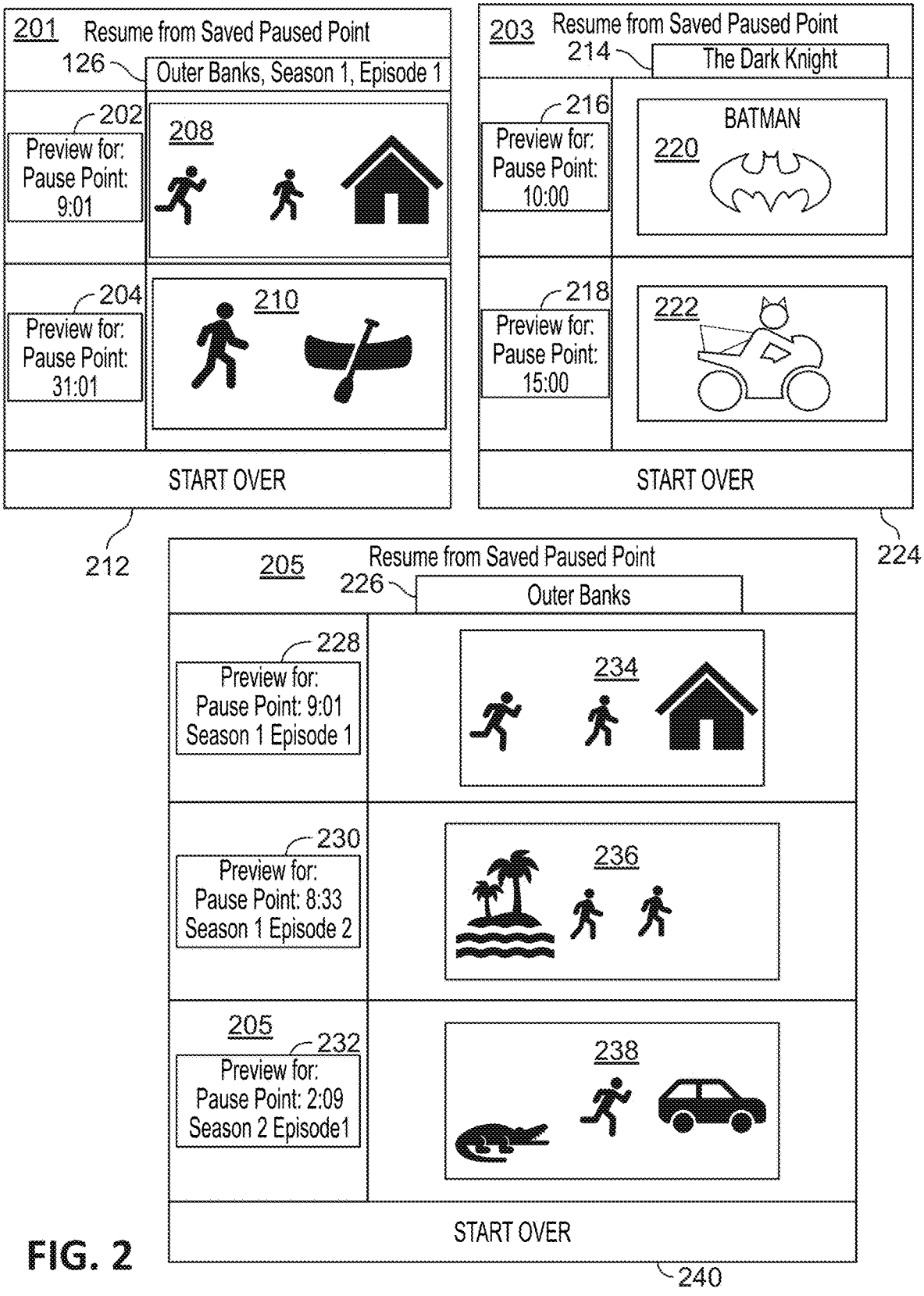

201
Resume from Saved Paused Point
126
Outer Banks, Season 1, Episode 1
202
Preview for:
Pause Point:
9:01
208
204
Preview for:
Pause Point:
31:01
210
START OVER
212
203
Resume from Saved Paused Point
214
The Dark Knight
216
Preview for:
Pause Point:
10:00
BATMAN
220
218
Preview for:
Pause Point:
15:00
222
START OVER
224
205
Resume from Saved Paused Point
226
Outer Banks
228
Preview for:
Pause Point: 9:01
Season 1 Episode 1
234
230
Preview for:
Pause Point: 8:33
Season 1 Episode 2
236
205
232
Preview for:
Pause Point: 2:09
Season 2 Episode1
238
START OVER
240

FIG. 2

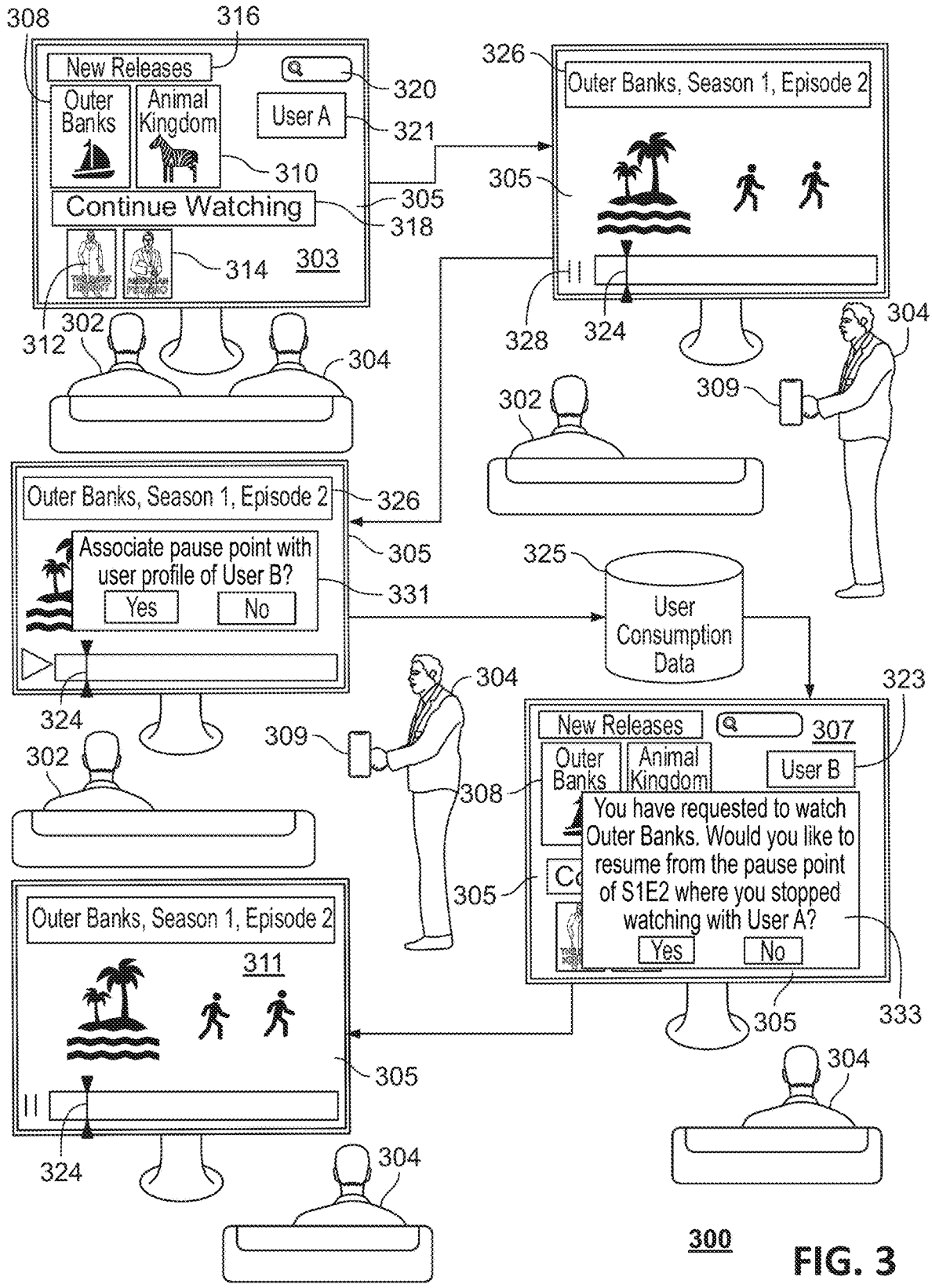

308
316
New Releases
320
Outer Banks
Animal Kingdom
User A
321
310
Continue Watching
305
318
303
314
312
302
304
326
Outer Banks, Season 1, Episode 2
305
328
324
304
309
302
Outer Banks, Season 1, Episode 2
326
Associate pause point with user profile of User B?
331
Yes
No
305
325
User Consumption Data
324
304
309
323
New Releases
307
Outer Banks
Animal Kingdom
User B
308
You have requested to watch Outer Banks. Would you like to resume from the pause point of S1E2 where you stopped watching with User A?
Yes
No
302
305
333
Outer Banks, Season 1, Episode 2
311
305
324
304
304
300

FIG. 3

400

402 User	404 Time stamps of viewing media assets	406 Pause Points	408 Average browsing time before viewing media asset	410 Most common browsing method used to find media asset	412 Most visited section of media application	414 Average Scroll Rate /Depth	416 Trick Play Functions per session	418 Average duration of consumption session	420 Frequency of skipping supplemental content	422 IP Address or other identifier of Mobile Device
User A	Outer Banks: S1E1: 10/1/21 from 5:00 PM -5:09 PM S1E2: 10/2/21 4:00 PM –4:08 PM The Dark Knight: 10/3/21 from 1:00 PM – 1:15 PM	Outer Banks: S1E1: 9:01 pause point; S1E2: 8:33 pause point The Dark Knight: 00:15 pause point	30 seconds	Scrolling	New Releases	2 seconds per identifier/ (25%)	10	1 hour	75%	192.168.1.12
User B	5 PM – 5:31 PM; 10/2/21, 4:00 PM – 4:09 PM	Outer Banks: S1E1: 31:01 pause point; S1E2: 8:33 pause point (via user A)	5 minutes	Search query	Continue Watching	1 second per identifier/ (10%)	1	30 minutes	40%	192.168.1.74
User C	The Dark Knight: 10/1/21 from 1:00 PM – 1:10 PM	The Dark Knight: 00:10 pause point	2 minutes	Scrolling	Continue Watching	5 seconds per identifier/ (50%)	20	2 hours	100%	192.168.1.97

FIG. 4

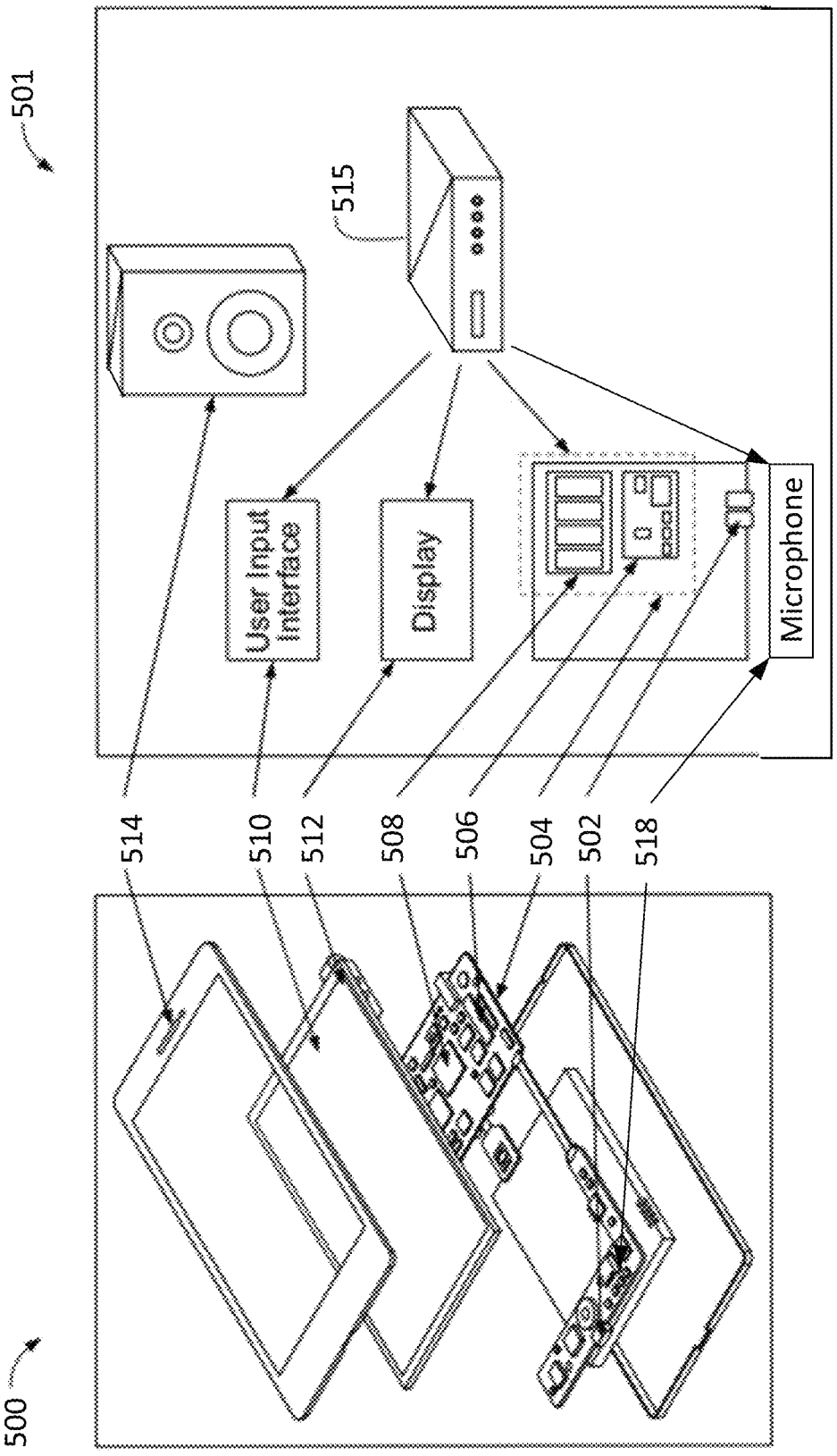

501
515
User Input Interface
Display
Microphone
514
510
512
508
506
504
502
518
500

FIG. 5

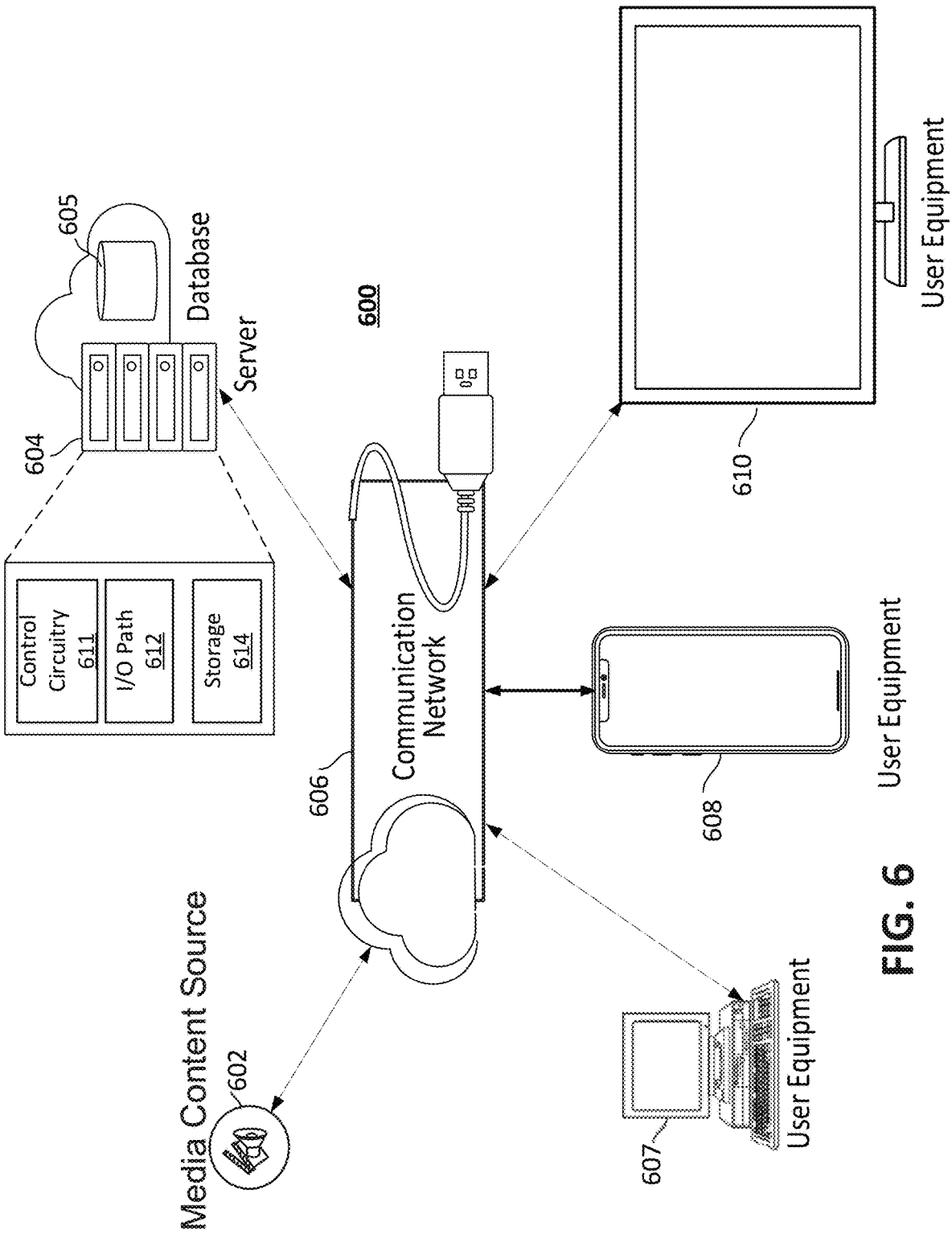

600
Media Content Source
602
Communication Network
606
Server
Database
604
605
Control Circuitry 611
I/O Path 612
Storage 614
User Equipment
610
User Equipment
608
User Equipment
607

FIG. 6

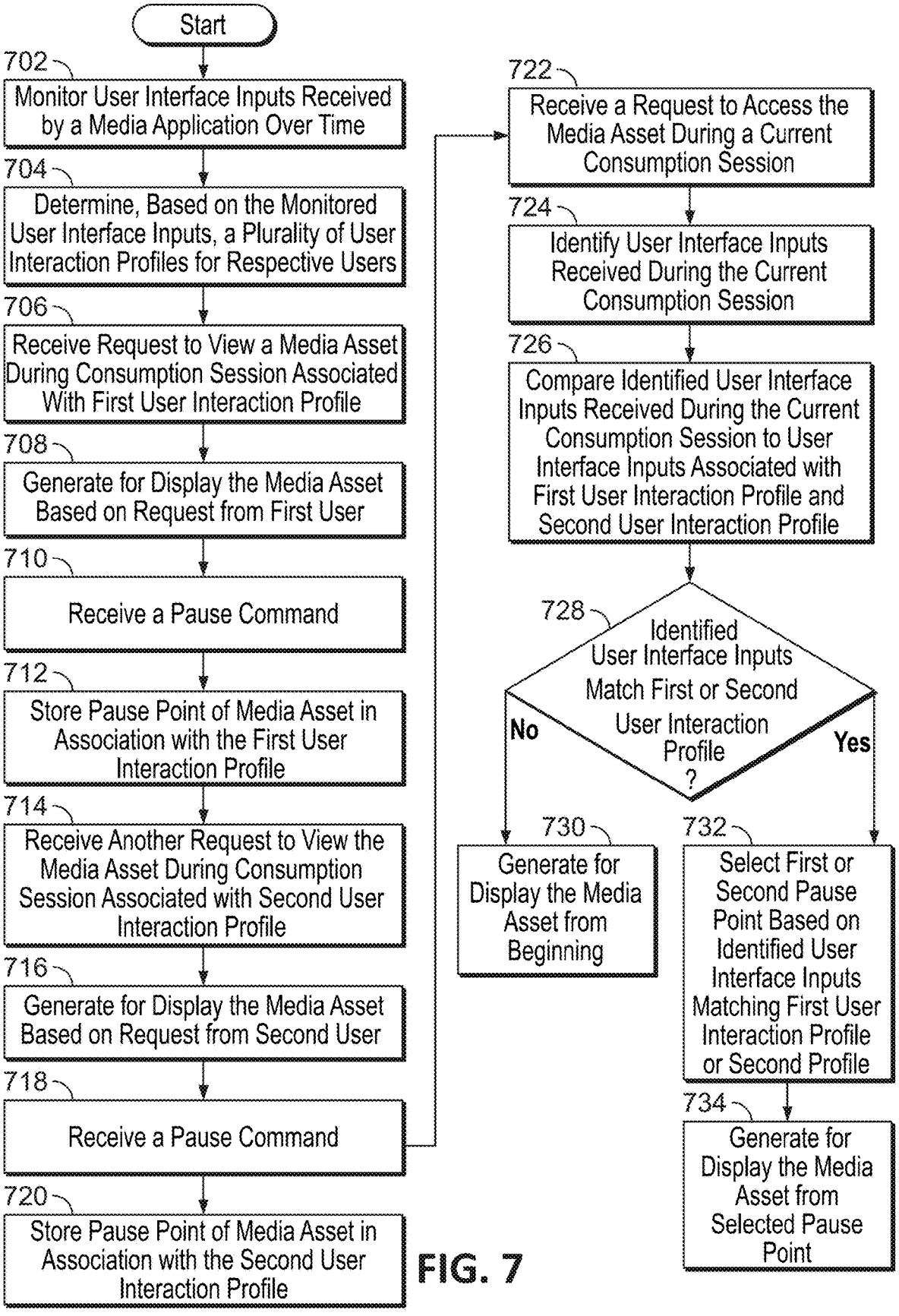

Start
702
Monitor User Interface Inputs Received by a Media Application Over Time
704
Determine, Based on the Monitored User Interface Inputs, a Plurality of User Interaction Profiles for Respective Users
706
Receive Request to View a Media Asset During Consumption Session Associated With First User Interaction Profile
708
Generate for Display the Media Asset Based on Request from First User
710
Receive a Pause Command
712
Store Pause Point of Media Asset in Association with the First User Interaction Profile
714
Receive Another Request to View the Media Asset During Consumption Session Associated with Second User Interaction Profile
716
Generate for Display the Media Asset Based on Request from Second User
718
Receive a Pause Command
720
Store Pause Point of Media Asset in Association with the Second User Interaction Profile
722
Receive a Request to Access the Media Asset During a Current Consumption Session
724
Identify User Interface Inputs Received During the Current Consumption Session
726
Compare Identified User Interface Inputs Received During the Current Consumption Session to User Interface Inputs Associated with First User Interaction Profile and Second User Interaction Profile
728
Identified User Interface Inputs Match First or Second User Interaction Profile ?
No
Yes
730
Generate for Display the Media Asset from Beginning
732
Select First or Second Pause Point Based on Identified User Interface Inputs Matching First User Interaction Profile or Second Profile
734
Generate for Display the Media Asset from Selected Pause Point

FIG. 7

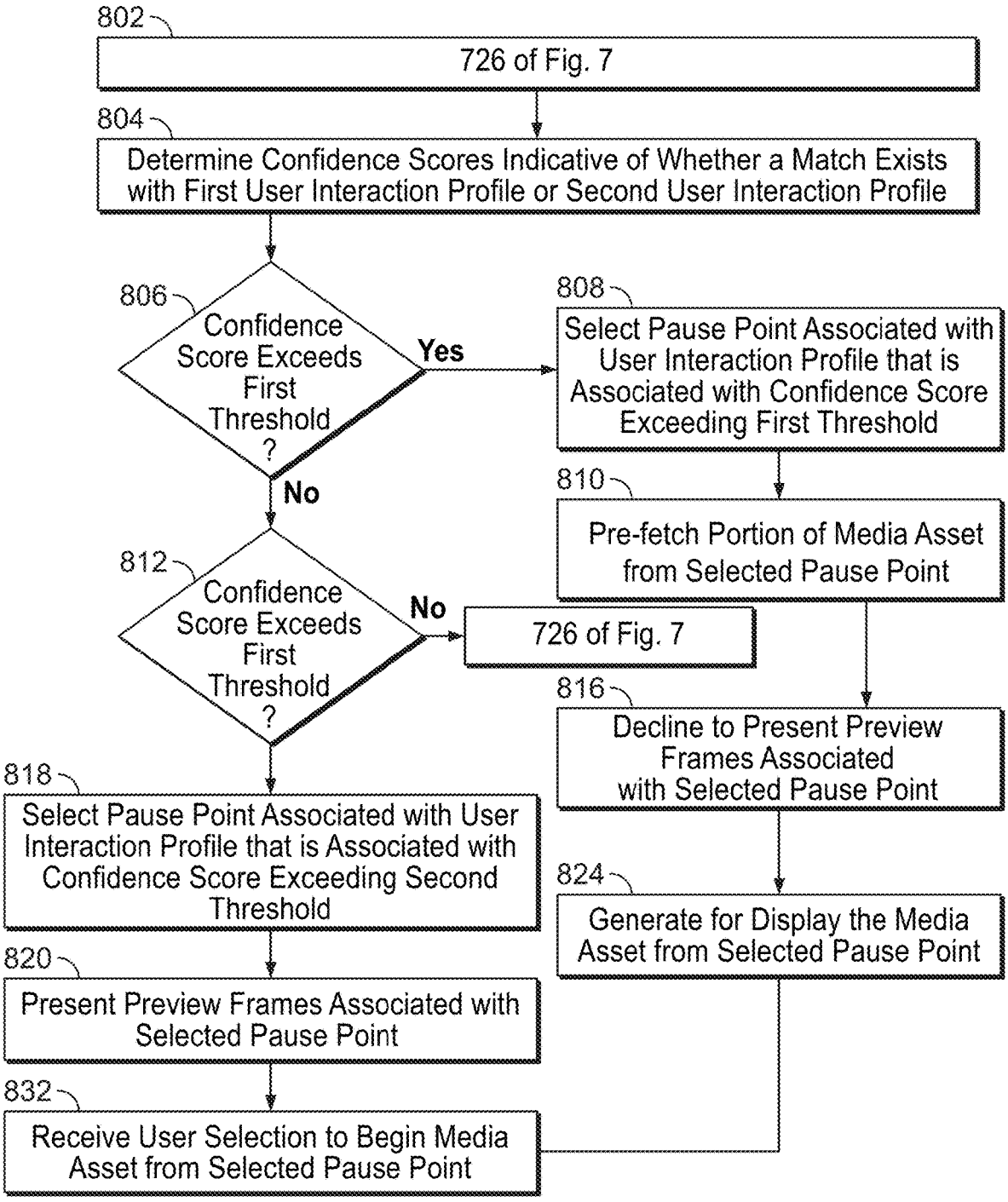

802
726 of Fig. 7
804
Determine Confidence Scores Indicative of Whether a Match Exists with First User Interaction Profile or Second User Interaction Profile
806
Confidence Score Exceeds First Threshold ?
Yes
No
808
Select Pause Point Associated with User Interaction Profile that is Associated with Confidence Score Exceeding First Threshold
810
Pre-fetch Portion of Media Asset from Selected Pause Point
812
Confidence Score Exceeds First Threshold ?
No
726 of Fig. 7
816
Decline to Present Preview Frames Associated with Selected Pause Point
818
Select Pause Point Associated with User Interaction Profile that is Associated with Confidence Score Exceeding Second Threshold
824
Generate for Display the Media Asset from Selected Pause Point
820
Present Preview Frames Associated with Selected Pause Point
832
Receive User Selection to Begin Media Asset from Selected Pause Point

FIG. 8

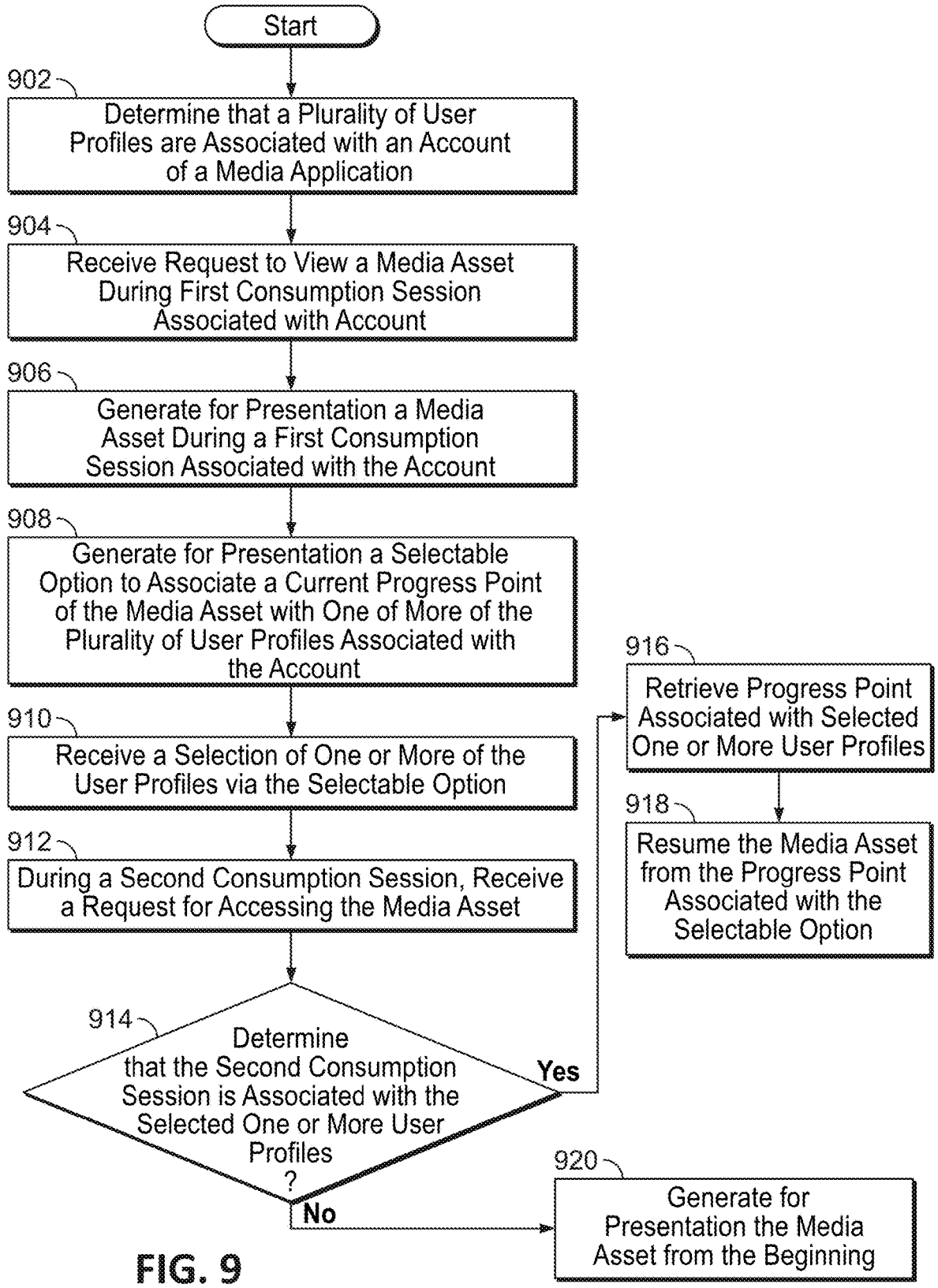

Start
902
Determine that a Plurality of User Profiles are Associated with an Account of a Media Application
904
Receive Request to View a Media Asset During First Consumption Session Associated with Account
906
Generate for Presentation a Media Asset During a First Consumption Session Associated with the Account
908
Generate for Presentation a Selectable Option to Associate a Current Progress Point of the Media Asset with One of More of the Plurality of User Profiles Associated with the Account
910
Receive a Selection of One or More of the User Profiles via the Selectable Option
912
During a Second Consumption Session, Receive a Request for Accessing the Media Asset
914
Determine that the Second Consumption Session is Associated with the Selected One or More User Profiles ?
Yes
No
916
Retrieve Progress Point Associated with Selected One or More User Profiles
918
Resume the Media Asset from the Progress Point Associated with the Selectable Option
920
Generate for Presentation the Media Asset from the Beginning

FIG. 9

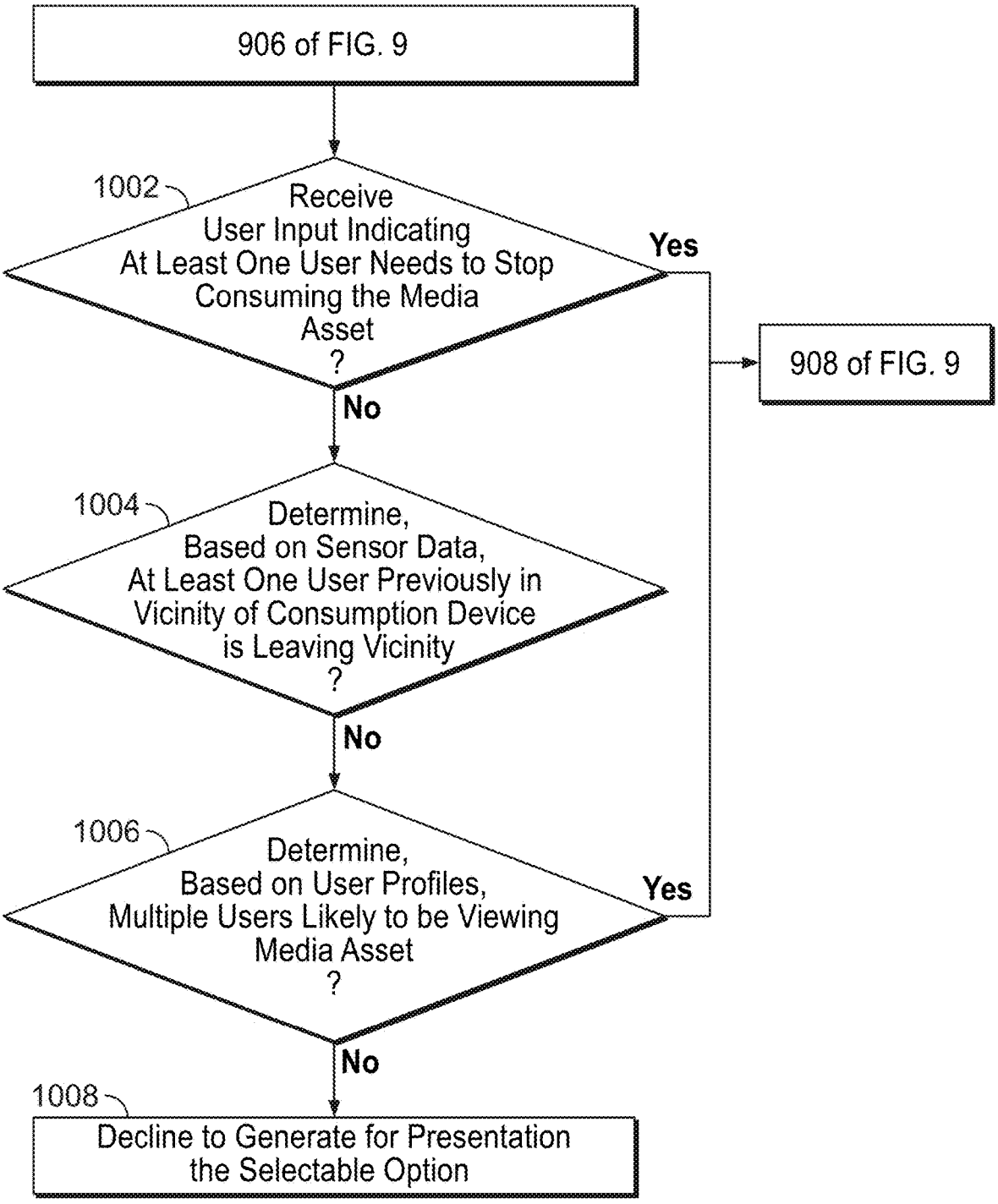

906 of FIG. 9
1002
Receive User Input Indicating At Least One User Needs to Stop Consuming the Media Asset ?
Yes
908 of FIG. 9
No
1004
Determine, Based on Sensor Data, At Least One User Previously in Vicinity of Consumption Device is Leaving Vicinity ?
No
1006
Determine, Based on User Profiles, Multiple Users Likely to be Viewing Media Asset ?
Yes
No
1008
Decline to Generate for Presentation the Selectable Option

FIG. 10

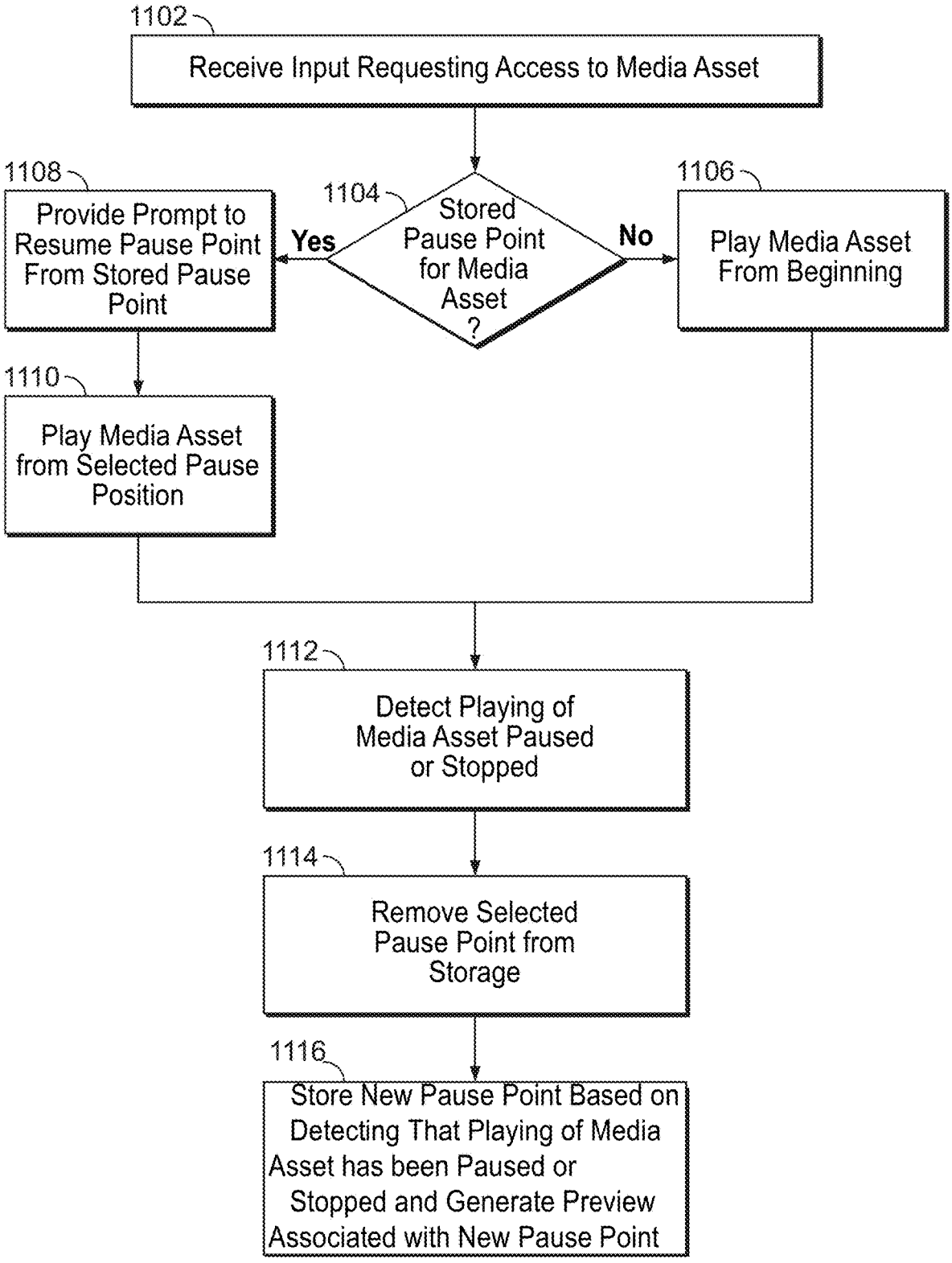

1102
Receive Input Requesting Access to Media Asset
1104
Stored Pause Point for Media Asset ?
Yes
No
1108
Provide Prompt to Resume Pause Point From Stored Pause Point
1106
Play Media Asset From Beginning
1110
Play Media Asset from Selected Pause Position
1112
Detect Playing of Media Asset Paused or Stopped
1114
Remove Selected Pause Point from Storage
1116
Store New Pause Point Based on Detecting That Playing of Media Asset has been Paused or Stopped and Generate Preview Associated with New Pause Point

FIG. 11

SYSTEMS AND METHODS FOR PREDICTIVE SELECTION OF PAUSE POINTS

BACKGROUND

This disclosure is directed to systems and methods for predictive selection of pause points. In particular, techniques are disclosed for selecting a pause point from which to resume a media asset from among multiple pause points associated with the media asset based on identified user interface inputs, and providing an option to associate a pause point from one user profile with another user profile.

SUMMARY

Modern media distribution systems enable a user to access more media content than ever before, and on more devices than ever before. Some media content providers enable a user to subscribe to an account that is associated with multiple user profiles. For example, multiple users within the same household can each have his or her own profile within the media content provider account, such that each profile tracks the respective user's viewing histories separately. On the other hand, some media content providers only offer a single shared user profile that tracks the collective viewing histories of a household, rather differentiating between the viewing histories of individual users.

Each of these approaches has drawbacks, however. For example, in the context of a shared media profile, if multiple users have been viewing the same media asset at different times and stopped viewing the media asset at different pause points, it is difficult for the media content provider to track viewing progress of the multiple users, i.e., the media content provider may store only one of such pause points. In this scenario, at least one of the user's pause points may not be saved and thus that user would not be able to resume the media asset from where he or she left off, and would need to rewind or fast-forward the media asset to navigate to where he or she left off, which may be a cumbersome task that is frustrating to users, and may waste bandwidth, computing resources and networking resources. While a shared media account providing for individual user profiles may allow multiple pause points to be stored in respective user profiles, some users may not have a profile (e.g., a guest of the household) or may be accidentally accessing the user profile of another user. In addition, users often consume content together, but a first user may need to stop watching the content for a variety of reasons, while a second user (e.g., associated with a user profile that requested access to the content) may wish to continue watching the content. However, in these circumstances, the media content provider does not provide a mechanism for the first user that needs to stop watching the content to preserve the progress point of the content at which he or she stopped viewing the content with the other user (e.g., the progress point may only be stored for the second user).

To overcome these problems, systems and methods are provided herein for storing an identification of a first pause point of a media asset associated with a first user interaction profile; storing an identification of a second pause point of the media asset associated with a second user interaction profile; receiving a request to access the media asset during a current consumption session; identifying user interface inputs received during the current consumption session; selecting one of the first pause point and the second pause point as a selected pause point based on determining whether the identified user interface inputs match user interface inputs associated with the first user interaction profile or the second user interaction profile; and generating for presentation the media asset starting from the selected pause point. In some embodiments, the media asset may be generated for presentation from the selected pause point seamlessly, without receiving user or user interface input explicitly selecting which pause point to resume from. In some embodiments, a preview of one or more frames associated with the pause point may be provided to the user, to enable receiving a confirmatory selection from the user indicating that a particular pause point is where he or she left off.

Such aspects enable, e.g., in the context of a media profile shared by multiple users, providing a media asset to a user from a progress point from which the user left off, without requiring the user to fast-forward or rewind through the media asset to locate his or her previous position, e.g., due to another user of the media profile having consumed the media asset until a different progress point of the media asset. Such features may avoid the expenditure of unnecessary bandwidth, computing resources and networking resources, which may be otherwise expended if the user needs to navigate through the media asset to discover the portion he or she left off at, as well as avoiding the presentation of content the user has not yet viewed (e.g., spoilers) that the user may encounter while attempting to discover where he or she left off. The correct pause point may be selected based on analyzing navigation patterns on a user interface of an application provided by a media content provider, which may preserve the privacy of the user (e.g., as opposed to identifying a user based on captured images of the user or other biometric information). In some embodiments, a preview or recap of frames associated with the pause point may be presented to the user to enable the user to verify the correct pause point he or she left off at.

In addition, systems and methods are provided herein for determining that a plurality of user profiles are associated with an account of a media application; generating for presentation a media asset during a first consumption session associated with the account; generating for presentation a selectable option to associate a current progress point of the media asset with one or more of the plurality of user profiles associated with the account; receiving a selection of one or more of the plurality of user profiles via the selectable option; during a second consumption session, receiving a request for accessing the media asset; and in response to determining that the second consumption session is associated with the selected one or more user profiles, resuming the media asset from the progress point associated with the selectable option.

Such aspects enable, e.g., in the context of a media account shared by multiple users having respective user profiles as part of the account, preserving a progress point he or she reached while consuming content with another user associated with the media account. For example, in the context of a family consumption session or group watching session, if a group begins consuming content together on one profile, but a user needs to stop watching the content (e.g., to leave for work, to cook dinner, etc.), such user may be provided with the ability to associate the pause point he or she left off at with his or her profile, in order to later finish consuming the content from the saved pause point. Thus, such user may avoid the need to fast-forward or rewind through the media asset to locate his or her previous position, as well as avoid the need to remember which media asset (e.g., which episode of a series) he or she was watching

with the group in order to locate the media asset. In addition, such features may avoid the expenditure of unnecessary bandwidth, computing resources and networking resources, that may be otherwise expended if the user needs to navigate through the media asset to discover the point he or she left off at and/or the media asset itself, as well as avoiding the presentation of content the user has not yet viewed (e.g., spoilers) that the user may encounter while attempting to discover where he or she left off.

In some embodiments, the provided systems and methods further comprise monitoring user interface inputs received over time, and determining, based on the monitored user interface inputs, a plurality of user interaction profiles for respective users.

In some aspects of this disclosure, generating for presentation the media asset starting from the selected pause point comprises generating for presentation a preview frame associated with the selected pause point.

In some embodiments, the provided systems and methods further comprise determining a confidence score associated with whether the user interface inputs match user interface inputs associated with the first user interaction profile or the second user interaction profile; and in response to determining the confidence score exceeds a predefined threshold, generating for presentation the media asset from the first pause point without generating for presentation a preview of the media asset.

In some aspects of this disclosure, the provided systems and methods further comprise determining a confidence score associated with whether the user interface inputs match user interface inputs associated with the first user interaction profile or the second user interaction profile, and, in response to determining the confidence score exceeds a predefined threshold, pre-fetching a portion of the media asset associated with the selected pause point. Such aspects enable pre-buffering a media asset from an anticipated resume position, e.g., the system may begin buffering as soon as the user interface inputs are correlated to a particular user interaction profile and pause point stored for the media asset in connection with such profile.

In some embodiments, the first user interaction profile and second user interaction profile respectively comprise a plurality of time stamps associated with a plurality of times during which the media asset and related media assets were accessed and navigation patterns associated with user interface inputs. In some embodiments, the navigation patterns indicate, for the first user interaction profile and the second user interaction profile, one or more of a most commonly accessed portion, whether accessing media assets is more commonly performed via search query commands or scroll commands, a scrolling rate, a frequency of receiving requests to perform trick-play functions, past durations of consumption sessions, and frequency of skipping supplemental content.

In some aspects of this disclosure, the media asset is being generated for display on a first device, and the first pause point is associated with pausing the media asset, generated for display on the first device, based on receiving a pause command from a second device. In some aspects of this disclosure, determining whether the identified user interface inputs match identified user interface inputs associated with the first user interaction profile or the second user interaction profile may comprise determining the request to access the media asset was received from the second device.

In some embodiments, the provided systems and methods further comprise generating for presentation respective previews for each pause point of the media asset. In some embodiments, generating for presentation respective previews for each pause point of the media asset comprises generating for presentation, for each pause point, a frame of the media asset prior to the pause point, wherein the preview for the second pause point comprises a frame of the media asset occurring prior to the second pause point and after the first pause point.

In some aspects of this disclosure, the provided systems and methods further comprise in response to receiving the request for accessing the media asset and determining that the second consumption session is associated with the selected one or more user profiles, providing a selectable option to resume the media asset from the progress point associated with the selectable option.

In some embodiments, the media asset is generated for presentation on a first device, and the selectable option is generated for presentation on the first device.

In some aspects of this disclosure, the media asset is generated for presentation on a first device, and the selectable option is generated for presentation on a second device in the vicinity of the first device.

In some aspects of this disclosure, the provided systems and methods further comprise determining that a plurality of users associated with respective user profiles of the plurality of user profiles are consuming the media asset during the first consumption session.

In some embodiments, determining that the plurality of users associated with respective user profiles of the plurality of user profiles are consuming the media asset during the first consumption session comprises determining that a first user profile initiated the first consumption session and determining that a second user profile comprises an indication that media assets related to the media asset of the first consumption session were previously consumed.

In some aspects of this disclosure, determining that the plurality of users associated with respective user profiles of the plurality of user profiles are consuming the media asset during the first consumption session comprises determining, based on sensor data, that users associated with a first user profile and a second user profile, respectively, are consuming the media asset during the first consumption session.

In some embodiments, determining that the plurality of users associated with respective user profiles of the plurality of user profiles are consuming the media asset during the first consumption session comprises receiving input indicating that the users associated with the first user profile and the second user profile, respectively, are consuming the media asset during the first consumption session.

In some aspects of this disclosure, the provided systems and methods further comprise determining that a user associated with a particular user profile is not consuming the media asset during the first consumption session; and in response to determining that the user associated with the particular user profile is not consuming the media asset during the first consumption session, declining to generate for presentation the selectable option. In some embodiments, determining that the user associated with the particular user profile is not consuming the media asset during the first consumption session comprises determining that media assets indicated in the particular user profile are not related to the media asset being consumed during the first consumption session.

BRIEF DESCRIPTION OF THE DRAWINGS

The present disclosure, in accordance with one or more various embodiments, is described in detail with reference to

the following figures. The drawings are provided for purposes of illustration only and merely depict typical or example embodiments. These drawings are provided to facilitate an understanding of the concepts disclosed herein and should not be considered limiting of the breadth, scope, or applicability of these concepts. It should be noted that for clarity and ease of illustration, these drawings are not necessarily made to scale.

FIG. **1** shows a block diagram of an illustrative system for generating for presentation a media asset starting from a selected pause point, in accordance with some embodiments of this disclosure.

FIG. **2** shows illustrative user interfaces for presenting previews associated with pause points of media assets, in accordance with some embodiments of this disclosure;

FIG. **3** shows a block diagram of an illustrative system for associating a current progress point of a media asset with one or more user profiles associated with a media application account, in accordance with some embodiments of this disclosure;

FIG. **4** shows illustrative data structures of user interaction profiles stored in a user consumption data database, in accordance with some embodiments of this disclosure;

FIG. **5** shows an illustrative user equipment device, in accordance with some embodiments of this disclosure;

FIG. **6** shows a system, in accordance with some embodiments of this disclosure;

FIG. **7** is a flowchart of a detailed illustrative process for generating for presentation a media asset starting from a selected pause point, in accordance with some embodiments of this disclosure;

FIG. **8** is a flowchart of a detailed illustrative process for generating for presentation a media asset starting from a selected pause point, in accordance with some embodiments of this disclosure;

FIG. **9** is a flowchart of a detailed illustrative process for associating a current progress point of a media asset with one or more user profiles associated with a media application account, in accordance with some embodiments of this disclosure;

FIG. **10** is a flowchart of a detailed illustrative process for determining whether to present a selectable option to associate a current progress point of a media asset with one or more user profiles associated with a media application account, in accordance with some embodiments of this disclosure; and

FIG. **11** is a flowchart of a detailed illustrative process for storing a new pause point with a preview, in accordance with some embodiments of this disclosure.

DETAILED DESCRIPTION

As referred to herein, the term "media asset" should be understood to refer to an electronically consumable user asset, e.g., television programming, as well as pay-per-view programs, on-demand programs (as in video-on-demand (VOD) systems), Internet content (e.g., streaming content, downloadable content, webcasts, etc.), augmented reality content, virtual reality content, video clips, audio, playlists, websites, articles, electronic books, blogs, social media, applications, games, and/or any other media or multimedia, and/or combination of the above.

FIG. **1** shows a block diagram of an illustrative system **100** for generating for presentation a media asset starting from a selected pause point, in accordance with some embodiments of this disclosure. A media application (e.g., executed at least in part on user equipment device **105** and/or a remote server, such as, for example, media content source **602** and/or server **604**) may generate for display user interface **103** comprising one or more media asset identifiers **108**, **110**, **112**, **114** corresponding to respective media assets, during a consumption session associated with the media application and user **102**. In some embodiments, media asset identifiers **108** and **110** may be associated with media asset category **116**, and media asset identifiers **112** and **114** may be associated with media asset category **118**. User interface **103** may comprise search bar **120** at which queries for media assets may be received from a user. Media asset **126** may be generated for display from a broadcast or stream received at user equipment device **105** in association with the media application, or from a recording stored in a memory of user equipment device **105** and/or a remote server. User equipment device **105** may be, e.g., a television and/or may include an integrated display, e.g., on a smartphone or tablet, or may be connected to an external display device, e.g., a television.

User interface **107** may be provided to user **104** in a separate consumption session associated with the media application and user **104**, e.g., occurring prior to, or subsequent to, the consumption session of user **102**. Such separate consumption session may be associated with user equipment device **105** or any other suitable device capable of accessing the shared media account or profile. In some embodiments, users **102** and **104** may be accessing the media application using a shared media account or shared media profile, e.g., accessible via the same login credentials of a user with a media content provider. In other words, the media application may not be able to determine which of user **102** or user **104** is accessing the media application on the basis of received login credentials or based on a selected user profile.

At **122**, the media application may monitor user interface inputs received from users **102** and **104** to generate respective user interaction profiles, and cause such user interaction profiles to be stored in database **125**, as shown in more detail in connection with FIG. **4**. User interface inputs may be monitored by the media application over any suitable period of time. In some embodiments, the user interaction profiles may be transparent to the user, e.g., users **102** and user **104** may interact with the media application by logging in to a shared user account or profile that may not be specific to user **102** or user **104**. The media application may monitor, for inclusion in the user interaction profiles, any suitable number of types of user interface inputs, e.g., a most commonly accessed portion of the media application, whether accessing media assets is more commonly performed via search query commands or scroll commands, a scrolling rate and/or scrolling depth, a frequency of receiving requests to perform trick-play functions, past durations of consumption sessions, frequency of skipping supplemental content, etc. For example, the media application may build user interaction profiles for users **102** and **104** comprising historical navigation patterns and consumption history for each user, such that the media application may predict whether user **102** or user **104** is accessing the media application during a current consumption session by comparing user interface inputs received during the current consumption session to user interface inputs associated with the respective user interaction profiles. The media application may monitor user interface inputs received prior to the consumption sessions of users **102** and **104** depicted in FIG. **1**, as well as subsequent to such consumption sessions.

As shown at user interfaces **109** and **111** separately corresponding to consumption sessions of users **102** and **104**, respectively, the media application may generate for

presentation media asset **126** (e.g., an episode of the media asset associated with media asset identifier **108**). The media application may generate for presentation media asset **126** based on receiving input selecting identifier **108** shown in media asset category **116** or based on receiving a query via search bar **120** requesting access to media asset **126**. The media application may receive the query in any suitable format (e.g., text-based input via a remote control or keyboard or other input device, audio or voice input, touch input, biometric input, or any combination thereof) via a suitable interface (e.g., input interface **510**, microphone **518** of FIG. **5**, etc.).

At **132**, the media application may receive a pause command from user **102**, e.g., associated with pause icon **128**, to pause media asset **126** at pause point **124** within the presentation of media asset **126**. In addition, at **132**, the media application may receive (e.g., at a later time than the pause command is received from user **102**) a pause command from user **104**, e.g., associated with pause icon **128**, to pause media asset **126** at pause point **130** within the presentation of media asset **126**. Pause point **130** may correspond to a different location within media asset **126** than pause point **124**, e.g., pause point **130** may occur prior to, or after, pause point **124** within media asset **126**. In some embodiments, the request to access media asset **126** is received from user **104** subsequent to the request to access media asset **126** received from user **102** and/or the pause command associated with icon **128** from user **102**. In such instance, the media application may determine to play media asset **126** from the beginning, as opposed to from the pause point associated with user **102**, based on determining that user interface inputs associated with the consumption session of user **104** do not correspond to user interface inputs corresponding to the first user interaction profile associated with user **102**. Indicators of pause point **124** and pause point **130** may be stored in connection with the respective user interaction profiles in database **125**. In some embodiments, pause points **124** and/or **130** may be stored in response to, e.g., a user exiting the media application, a device associated with playing of media asset **126** being powered off, or any request to otherwise cease or stop access of media asset **126**.

At **134**, the media application may determine that another consumption session has been initiated, e.g., a current consumption session, occurring subsequent to the consumption sessions during which pause point **124** and pause point **130** were stored in connection with the respective user interaction profiles in database **125**. In some embodiments, the media application illustrated in FIG. **1** may provide a shared user account or profile such that the media application may not be able to determine which of user **102** or user **104** is using the media application based on login credentials alone, and the particular user device **105** being used may not be indicative of which of user **102** or user **104** is associated with the current consumption session. The media application may identify user interface inputs during the current consumption session, and receive a request to access the media asset.

At **136**, the media application may compare the identified user interface inputs during the current consumption session to user interface inputs associated with the user interaction profiles. For example, during the current consumption session, the media application may receive selection of media asset **126** via identifier **108** contained in media asset category **116**, in which case the media application may determine that the current consumption session corresponds to the first user interaction profile, e.g., if the first user interaction profile is commonly associated with selecting media assets from media asset category **116**, and/or consumption sessions at the particular time of day or day of the week of the current consumption session. On the other hand, during the current consumption session, the media application may receive selection of media asset **126** discovered by way of a query via search bar **120**, in which case the media application may determine that the current consumption session corresponds to the second user interaction profile, e.g., if the second user interaction profile is commonly associated with selecting media assets discovered by way of a query via search bar **120**, and/or consumption sessions at the particular time of day or day of the week of the current consumption session.

The media application may select one of pause point **124** or pause point **130** based on the comparison of the identified user interface inputs. For example, in response to determining that the user interface inputs of the current consumption session match user interface inputs stored at user consumption database **125** in connection with the first user interaction profile, the media application may cause media application **126** to be generated for display from pause point **124** associated with the first user interaction profile. In some embodiments, the media application may cause media asset **126** to be generated for display from pause point **124** automatically in response to the determination that the user interface inputs of the current consumption session match user interface associated with the first user interaction profile, or a selectable option may be generated for presentation at user equipment device **105** for user confirmation of pause point **124**. In some embodiments, one or more previews of pause point **124** may be generated for display by the media application, as discussed in more detail in connection with FIG. **2**. In some embodiments, if during the current consumption session the media application receives input to restart a particular media asset from the beginning, the media application may use this as an indication that the consumption session is associated with a user interaction profile that has not yet viewed the media asset and thus is not associated with a stored pause point. In some embodiments, a user interaction profile associated with a current consumption session may be identified based on detections by one or more sensors (e.g., a camera attached to user equipment device **105**, a smart lock associated with a room in which user equipment device **105** is positioned, detecting a user device of a particular user, such as a mobile phone, is in a vicinity of user equipment device **105**, etc.), such as by comparing sensor data determined by the one or more sensors with information stored in association with the user interaction profiles.

FIG. **2** shows illustrative user interfaces for presenting previews associated with pause points of media assets, in accordance with some embodiments of this disclosure. It should be noted that the embodiments discussed in connection with FIG. **2** may be implemented alternatively or in addition to the embodiments discussed in connection with FIG. **1**. The media application may generate for presentation user interface **201** in connection with media asset **126**. User interface **201** may comprise identifiers **202** and **204** respectively associated with pause points **124** and **130** of media asset **126**, an indication of media asset **126**, one or more frames of preview **208** associated with pause point **124** indicated at **202**, one or more frames of preview **210** associated with pause point **130** indicated at **204**, and a selectable option **212** to restart the presentation of media asset **126** from a beginning of media asset **126**. In some embodiments, the preview frames may be associated with a short clip (e.g., 5-10 seconds) prior to and/or encompassing a particular pause point, an animation associated with the

particular pause point, still images of one or more frames associated with the particular pause point, audio associated with one or more frames, or any combination thereof, or any other suitable representation of the particular pause points to serve as a refresher to the user of the location in media asset **126** at which he or she left off. In some embodiments, in response to receiving a pause command or other command to cease access of a media asset, the media application may capture one or more frames associated with the pause point and/or prior to the pause point for use in generating the preview frames. In some embodiments, the media application may identify frames (e.g., based on metadata of the frame and/or image or audio processing techniques to identify objects of interest) to be included in the preview based on whether the frames contain memorable aspects, e.g., a famous actor, a critical or exciting scene in the media asset, etc.

In some embodiments, preview frames may be presented at the user interfaces of FIG. **2** in response to determining that a confidence score of whether the identified user interface inputs match user interface inputs associated with the first user interaction profile or the second user interaction profile is below a predefined threshold. For example, if the media application determines that a likelihood of user interface inputs of the current consumption session matching a particular user interaction profile is below a threshold of, e.g., a score of 50%, preview frames **208**, **210** may be presented prior to generating for presentation media asset **126** from the selected pause point, to receive user confirmation of the correct pause point based on the preview frame prior to generating for display media asset **126** from the selected pause position.

In some embodiments, to avoid showing a user one or more spoilers in connection with the preview frames of a progress point of media asset **126** that he or she has not yet reached, the media application may provide the preview frames **208**, **210** one at a time, where the order of providing the preview frames corresponds to first showing an earlier pause point preview frame within the presentation of media asset **126**. For example, user input may be received indicating that frame **208** does not correspond to the pause point of the user associated with the current consumption session, and in response to receiving such input, preview frame **210** may be generated for presentation to enable user selection of preview frame **210** (or media asset **126** may be generated for presentation from the pause point indicated at **204**, if such pause point is the only remaining stored pause point after receiving the user input). In some embodiments, if the media application determines that the pause point indicated at **202** is more likely to correspond to the user associated with the current consumption session than the pause point indicated at **204**, preview frame **208** associated with the pause point indicated at **202** may be displayed in an emphasized manner as compared to preview frame **210**, e.g., larger, more conspicuous color scheme or formatting, and/or more prominent position within user interface **201**. In some embodiments, using the techniques discussed in connection with FIG. **1**, the media application may predict which pause point corresponds to a particular user, and may highlight a certain preview frame corresponding to that pause point, or sort the preview frames to show the preview frame associated with the predicted pause point to be first within the list of preview frames, such as, for example, at a top of the screen or otherwise more prominently shown to the user.

User interface **203** may be provided by the media application in connection with media asset **214**, e.g., a movie titled "The Dark Knight," where multiple pause points indicated at **216**, **218** may be stored in connection with media asset **214**, where the pause points **216**, **218** may respectively correspond to preview frames **220**, **222**. User interface **203** may further include selectable option **224** to restart the presentation of media asset **126** from a beginning of media asset **126**. In some embodiments, the preview frames (e.g., preview frames **220**, **222**) for particular pause points may correspond to I-Frames of one or more segments that immediately precede the pause points. For example, if one of the pause points corresponds to segment **500** in the manifest of media asset **214**, then the I-frames from previous segments may be displayed in succession (e.g., I-Frames from **495**, **496**, etc.). In some embodiments, one or more I-frames associated with a main plot or other significant scene occurring prior to the pause point indicated at **218**, but after the pause point indicated at **216**, may be used. In some embodiments, an audiovisual clip may be used as preview **220** in response to determining that preview **220** is associated with the earliest stored pause point for media asset **214**, whereas preview **222** may correspond to still images, e.g., to avoid preview **222** acting as a spoiler to a user associated with the pause point indicated at **216**, whereas the same concerns may not exist for preview **220** associated with the pause point indicated at **216**, since the user of the current consumption session is likely associated with pause point **216** or pause point **218** and thus either way has encountered the frames associated with preview frame **220**.

In some embodiments, the media application permits a user to perform pause and resume operations using his or her mobile device, and the pause point may be saved on the mobile device and/or at remote storage accessible by the mobile device. Thus, the pause point may be associated with a specific mobile device, regardless of whether a media account is associated with multiple profiles. In such scenario, if the media application determines that a mobile device requesting access to a media asset associated with multiple pause points is the same mobile device that is indicated in a particular user interaction profile (e.g., the user is attempting to resume the media asset using the mobile device as a remote control in a current consumption session, and the user previously used the mobile device to interact with the media asset or another media asset in a prior consumption session), the pause point associated with the particular user interaction profile comprising the indication of the mobile device may be automatically selected. In some embodiments, such pause point may be automatically selected based on the media application computing a high confidence score (e.g., exceeding a predefined threshold) that the current consumption session is associated with the particular user interaction profile comprising the indication of the mobile device. In some embodiments, such high confidence score causes the presentation of the previews of FIG. **2** to be conditional, e.g., there may be no need to present a preview frame of any pause points, or present any other pause points, since the media application is sufficiently confident that the current consumption session corresponds to the particular user interaction profile, on the basis of the same mobile device being associated with each of the current consumption session and particular user interaction profile associated with the prior consumption session that also utilized the mobile device.

User interface **205** may be provided by the media application in connection with media asset collection **226**, e.g., an episodic series of a plurality of episodes spanning one or more seasons. User interface **205** may comprise the pause points indicated at **228**, **230**, **232** for respective episodes of media asset collection **226** from one or more seasons

thereof, where the pause points indicated at **228**, **230**, **232** may respectively correspond to preview frames **234**, **236**, **238**. In some embodiments, if the media application receives selection of, e.g., identifier **108**, user interface **205** may be generated for presentation comprising a list of each episode of the series associated with identifier **108** having a stored pause point. In some embodiments, a short recap of the plot of the media asset prior to the selected pause point may be automatically presented or provided for user selection to view, depending on a length of time since last viewing the media asset, to refresh a user's memory.

FIG. **3** shows a block diagram of an illustrative system **300** for associating a current progress point of a media asset with one or more user profiles associated with a media application account, in accordance with some embodiments of this disclosure. The media application may generate for display user interface **303** comprising one or more media asset identifiers **308**, **310**, **312**, **314** corresponding to respective media assets, during a consumption session associated with the media application and user **302**. In some embodiments, media asset identifiers **308** and **310** may be associated with media asset category **316**, and media asset identifiers **112** and **114** may be associated with media asset category **318**. User interface **303** may comprise search bar **320** at which queries for media assets may be received from a user. Media asset **326** may be generated for display from a broadcast or stream received at user equipment device **305** in association with the media application, or from a recording stored in a memory of user equipment device **305** and/or a remote server. User equipment device **305** may be, e.g., a television and/or may include an integrated display, e.g., on a smartphone or tablet, or may be connected to an external display device, e.g., a television.

In some embodiments, users **302** and **304** may be, e.g., members of the same household taking part in a group consumption session in association with the media application, accessing the media application using a user profile **321** of user **302**, where each of user **302** and **304** may be associated with a respective user profile within a single account of the media application. The media application may generate for consumption media asset **326** based on input received from user **302** or user **304**. During the playing of media asset **326**, user **304** may need to stop consuming media asset **326** for any of a variety of reasons, but user **302** may desire to continue consuming media asset **326** (being viewed on the user profile of user **302**) at the current time. User **304** may desire to preserve information related to progress point or pause point **324**, since user **304** may wish to continue consuming media asset **326** at a later time, and user **304** may wish to avoid forgetting which media asset he or she was consuming with user **302** during the group consumption session as well as forgetting a progress point of the media asset when user **304** stopped consuming media asset **326**. The media application may provide selectable option **331** to associate pause point **324** with one or more user profiles associated with the account of the media application. In some embodiments, selectable option **331** may be generated for display as an overlay, overlapping media asset **326**. In some embodiments, selectable option **331** may be implemented as a special command, e.g., "Pause to Resume on Profile B" which enables a user (e.g., user B corresponding to user **304**) associated with profile B (corresponding to profile **323**) to resume the media asset from the associated progress point from his or her own profile. Selectable option **331** may be provided by the media application in response to one or more of a variety of occurrences. For example, upon receiving a pause command associated with identifier **328** (or any other suitable input during playing of media asset **326**) such as, for example, from user **302** or user **304**, the media application may generate for presentation selectable option **331**. In some embodiments, selectable option **331** may comprise a list indicating each user profile associated with the account and an icon (e.g., a checkbox) for each respective user profile, to enable selection of any suitable number of user profiles to be associated with progress point **324**. In some embodiments, selectable option **331** may be provided based on receiving input indicating which users are consuming content during a current consumption session. In some embodiments, if a current time of the current consumption session corresponds to a time that user **304** typically consumes content, e.g., as indicated in the user profile of user **304** stored at database **325**, the media application may determine that user **304** is likely involved in the consumption session, and thus may determine to provide selectable option **331**, e.g., when a pause command is received or when playing of media asset **326** is otherwise ceased prior to the end of media asset **326**. In some embodiments, selectable option **331** may be provided in response to determining that media asset **326** is similar to media assets associated with the user profile of user **304**, e.g., if user **304** recently watched the previous episode in the season of episodes associated with media asset **326**. In some embodiments, selectable option **331** may be provided in response to determining that user **304** is leaving a vicinity of user equipment device **305**. For example, sensor data determined by one or more sensors (e.g., a camera, biometric sensor, smart lock, etc.) may be used to identify the presence of user **304** during the group consumption session and his or her subsequent exiting of the vicinity of user equipment device **305**.

In some embodiments, a second screen device **309** (e.g., a smart phone associated with the user profile of user **304**) may be in communication over a network (e.g., network **606** of FIG. **6**) with user equipment device **305**. The media application may determine, e.g., based on varying Received Signal Strength Indicator (RSSI) signals between second screen device **309** and user equipment device **305**, that user **304** was initially present during the current consumption session but is now exiting the vicinity of user equipment device **305**, and in response to this determination may provide selectable option **331** at second screen device **309** or at user equipment device **305**. In some embodiments, selectable option **331** may be provided by the media application on second screen device **309**, e.g., so as not to interrupt the consumption session of user **302** when user **304** is not able to continue consuming media asset **326**. Selectable option **331** may be provided to second screen device **309** in any suitable manner, e.g., via an email message to an email address specified in the user profile, via a text message to a phone number specified in user profile, a notification in association with a mobile application associated with the media application, etc. Conversely, the media application may decline to provide selectable option **331** upon determining that user **302** is likely to be consuming content alone. For example, such determination may be made based on input from the user, sensor data indicating user **302** is alone, determining that media asset **326** is unrelated to media assets indicated as being consumed in connection with other user profiles stored in database **325**, or any combination thereof. While selectable option **331** is shown in the example of FIG. **3** as providing the capability of associating pause point **324** with user profile **323** associated with user **304**, one or more

selectable options may be provided in accordance with the aforementioned techniques to provide multiple user profiles (e.g., each user profile associated with the account) the option of associating pause point **324** with the respective user profile.

The media application may provide user interface **307** in connection with a subsequent second consumption session that is associated with user profile **323** and user **304**. The second consumption session may occur in association with user equipment device **305**, or any other suitable device capable of running the media application and providing content to user **304**. The media application may determine that media asset **326** associated with identifier **308** of user interface **307** is associated with pause point **324**, based on an indication stored in connection with user profile **323** stored in database **325**, based on an affirmative selection ("Yes") of selectable option **331** in connection with the first consumption session, e.g., the group consumption session of user **302** and **304**. In some embodiments, in response to receiving selection of identifier **308**, the media application may automatically resume playing of media asset **326** from pause point **324** having been associated with user profile **323**, as shown at user interface **311** of user equipment device **305**. In some embodiments, selectable option **333** may be provided, prior to generating for presentation user interface **311**, to enable user **304** to confirm that he or she wishes to resume from pause point **324** of media asset **326**. In some embodiments, preview frames associated with pause point **324**, such as discussed in connection with FIG. **2**, may be employed in connection with the example of FIG. **3**, e.g., preview frames of pause point **324** may be provided to user **304** to ensure that he or she wishes to resume from pause point **324**.

In some embodiments, the techniques of FIG. **3** may be used within a household even if users are accessing different accounts within the media application that are unrelated to each other. For example, the media application may detect that historically, multiple accounts having different login credentials have been accessed from a particular IP address (e.g., associated with a particular household). Using the techniques of FIG. **3**, the media application may determine that a first user associated with the first account and a second user associated with a separate second account are consuming content together, and provide an option to a second user to associate a progress point associated with the first account with the second account.

FIG. **4** shows illustrative data structure **400** of user interaction profiles stored in a user consumption data database, in accordance with some embodiments of this disclosure. Data structure **400** may be stored in database **125** (which may correspond to database **325**), and may comprise any suitable amount or types of data (e.g., user interface inputs, consumption data) associated with respective users of the media application. For example, column **402** may correspond to identifiers of user interaction profiles or user profiles associated with a particular account of the media application; column **404** may correspond to identifiers of time stamps of consumed media assets; column **406** may correspond to progress points or pause points of consumed media assets; column **408** may correspond to the average amount of time a user browses before viewing a media asset; column **410** may correspond to the most common browsing method used to find media asset (e.g., scrolling through media asset identifiers, or searching via a query for media assets); column **412** may correspond to the most visited section of the media application (e.g., "New Releases," "Continue Watching," etc.); column **414** may correspond to an average scroll rate (e.g., how fast a particular user scrolls through the media application) and/or a scroll depth (e.g., a percentage of a particular screen a user typically scrolls through prior to consuming content); column **416** may correspond to a typical amount of trick play functions (e.g., fast-forward, rewind, skip, variable speed consumption) during consumption sessions; column **418** may correspond to a typical duration of consumption sessions by the user, such as based on a day of the week or time of day; column **420** may correspond to a frequency of skipping supplemental content (e.g., advertisements); and column **422** may correspond to an IP address or other identifier of a mobile device of a particular user, e.g., used to consume content or as a remote control to control playing of a media asset on user equipment device **305**. In some embodiments, data structure **400** may comprise metadata indicating attributes of consumed media assets, e.g., genre, actors, keywords, director, etc.).

The user account and/or user profile and/or user interaction profile information stored in association with data structure **400** may be built over time by monitoring user interface inputs and user interactions with the media application over time, and may be utilized in the examples of FIGS. **1-3**, e.g., in selecting a pause point for resuming a media asset and associating a progress point or pause point of a first user profile with a second user profile. In some embodiments, machine learning techniques may be employed, such as training one or more machine learning models based on data stored at data structure **400** (e.g., labeled as corresponding to a particular user profile), to classify received user interface inputs as likely to be associated with a particular user profile.

In some embodiments, based on the data stored in column **422**, the media application may determine when a command (e.g., a pause command or resume command) received from a particular user device or second screen device matches a stored identifier of a particular user device or second screen device. In such instance, a pause point associated with the user interaction profile corresponding to the particular user device or second screen device may be identified as the relevant profile for the current consumption session, and presentation of the media asset may be automatically resumed from the pause point, or resumed after receiving confirmation of the user (e.g., with or without providing any preview frames prior to the resumption). In some embodiments, the media application may store the pause point locally on the user device or second screen device (or on a remote server), to enable a user to resume the media asset from the pause point on his or her user device.

In some embodiments, a confidence score may be generated while a user is navigating to a content item, based on comparing user interface inputs of a current consumption session with one or more attributes stored in data structure **400**. For example, the media application may compute confidence scores for respective user interaction profiles with respect to user interface inputs of a current consumption session, e.g., based on a similarity between the stored data attributes and the monitored interactions during the current consumption session. In some embodiments, one or more of the columns of data structure **400** may be weighted based on predictive value to identifying a particular user. For example, if the media application determines an identifier associated with a mobile device being used in a consumption session matches an identifier of a mobile device specified in column **422**, such determination may, in some circumstances, be enough on its own to cause a confidence score to be computed that is sufficiently high to select a pause point

or progress point associated with the user interaction profile having the matching mobile device identifier.

In some embodiments, the determination of whether to present a preview or not may be dependent on the value of the confidence score described earlier (e.g., a preview may not be presented if the mobile device detected in a current consumption session matches a particular user interaction profile stored in data structure **400**). In some embodiments, in response to a computed confidence score exceeding a predetermined threshold, the media application may start pre-fetching a portion of the content (e.g., from the pause point) in order to reduce the time to first byte (TTFB). Such pre-fetching enables the media application to preload (e.g., locally pre-buffer and/or pre-cache) portions of the media asset from the predicted pause point, which can reduce latency in delivery of content to a user, thereby reducing amount of time that a user waits for content to load and enhancing the user experience.

In some embodiments, the media application may predict which pause point to present from among multiple pause points based on historical data associated with various commands (e.g., resume functions) performed in the past. For example, a user might be in the habit of watching a specific series at particular times on particular days. All commands may be collected and associated with a time stamp in order to establish a pattern and predict which pause point to present based on the time a command is received, and additionally, a user's navigation patterns may be tracked and used to identify a user as compared to navigation patterns of other users. For example, one user in a household might scroll quickly to get to section of a screen (e.g., Continue Watching section), while another user might get to the desired content by searching it for it (e.g., by entering the first few letters of the title), e.g., since it might be quicker to get to the content this way. Accordingly, such historical navigation patterns can be used to predict which pause point to present based on users with specific navigation patterns and previously chosen pause points. In some embodiments, navigation profiles may be developed over time based on data collected about how users interact with the system, e.g., scrolling rate, as well as actions received while content is consumed or the manner of consuming content (e.g., perform trick play functions more often than other users, binge-watch, spend a certain time watching per consumption session, whether and how long breaks are taken between episodes, whether and how often a command to skip commercials is selected when available, etc.).

In some embodiments, the media application may delete a stored pause point from data structure **400** in response to receiving user input to resume playback of content from the particular pause point. In some embodiments, the new pause point for a particular user may be updated in response to receiving a pause command or in response to determining that consumption of a media asset is stopped.

FIGS. **5-6** describe illustrative devices, systems, servers, and related hardware for generating for presentation a media asset starting from a selected pause point and associating a current progress point of a media asset with one or more user profiles associated with a media application account, in accordance with some embodiments of the present disclosure. FIG. **5** shows generalized embodiments of illustrative user equipment devices **500** and **501**, which may correspond to, e.g., user equipment device **105** of FIG. **1**, user equipment devices **305**, **309** of FIG. **3**. For example, user equipment device **500** may be a smartphone device. In another example, user equipment device **501** may be a user television equipment system or device. User television equipment device **501** may include set-top box **516**. Set-top box **516** may be communicatively connected to microphone **518**, speaker **514**, and display **512**. In some embodiments, microphone **518** may receive voice commands for the media application. In some embodiments, display **512** may be a television display or a computer display. In some embodiments, set-top box **516** may be communicatively connected to user input interface **510**. In some embodiments, user input interface **510** may be a remote control device. Set-top box **516** may include one or more circuit boards. In some embodiments, the circuit boards may include control circuitry, processing circuitry, and storage (e.g., RAM, ROM, hard disk, removable disk, etc.). In some embodiments, the circuit boards may include an input/output path. More specific implementations of user equipment devices are discussed below in connection with FIG. **6**. Each one of user equipment device **500** and user equipment device **501** may receive content and data via input/output (I/O) path **502**. I/O path **502** may provide content (e.g., broadcast programming, on-demand programming, Internet content, content available over a local area network (LAN) or wide area network (WAN), and/or other content) and data to control circuitry **504**, which includes processing circuitry **506** and storage **508**. Control circuitry **504** may be used to send and receive commands, requests, and other suitable data using I/O path **502**, which may comprise I/O circuitry. I/O path **502** may connect control circuitry **504** (and specifically processing circuitry **506**) to one or more communications paths (described below). I/O functions may be provided by one or more of these communications paths, but are shown as a single path in FIG. **5** to avoid overcomplicating the drawing.

Control circuitry **504** may be based on any suitable control circuitry such as processing circuitry **506**. As referred to herein, control circuitry should be understood to mean circuitry based on one or more microprocessors, microcontrollers, digital signal processors, programmable logic devices, field-programmable gate arrays (FPGAs), application-specific integrated circuits (ASICs), etc., and may include a multi-core processor (e.g., dual-core, quad-core, hexa-core, or any suitable number of cores) or super-computer. In some embodiments, control circuitry may be distributed across multiple separate processors or processing units, for example, multiple of the same type of processing units (e.g., two Intel Core i7 processors) or multiple different processors (e.g., an Intel Core i5 processor and an Intel Core i7 processor). In some embodiments, control circuitry **504** executes instructions for the media application stored in memory (e.g., storage **508**). Specifically, control circuitry **504** may be instructed by the media application to perform the functions discussed above and below. In some implementations, processing or actions performed by control circuitry **504** may be based on instructions received from the media application.

In client/server-based embodiments, control circuitry **504** may include communications circuitry suitable for communicating with a media application server or other networks or servers. The instructions for carrying out the above mentioned functionality may be stored on a server (which is described in more detail in connection with FIG. **6**). Communications circuitry may include a cable modem, an integrated services digital network (ISDN) modem, a digital subscriber line (DSL) modem, a telephone modem, Ethernet card, or a wireless modem for communications with other equipment, or any other suitable communications circuitry. Such communications may involve the Internet or any other suitable communication networks or paths (which is described in more detail in connection with FIG. **6**). In

addition, communications circuitry may include circuitry that enables peer-to-peer communication of user equipment devices, or communication of user equipment devices in locations remote from each other (described in more detail below).

Memory may be an electronic storage device provided as storage **508** that is part of control circuitry **504**. As referred to herein, the phrase "electronic storage device" or "storage device" should be understood to mean any device for storing electronic data, computer software, or firmware, such as random-access memory, read-only memory, hard drives, optical drives, digital video disc (DVD) recorders, compact disc (CD) recorders, BLU-RAY disc (BD) recorders, BLU-RAY 3D disc recorders, digital video recorders (DVR, sometimes called a personal video recorder, or PVR), solid state devices, quantum storage devices, gaming consoles, gaming media, or any other suitable fixed or removable storage devices, and/or any combination of the same. Storage **508** may be used to store various types of content described herein as well as media application data described above. Nonvolatile memory may also be used (e.g., to launch a boot-up routine and other instructions). Cloud-based storage, described in relation to FIG. **5**, may be used to supplement storage **508** or instead of storage **508**.

Control circuitry **504** may include video generating circuitry and tuning circuitry, such as one or more analog tuners, one or more MPEG-2 decoders or other digital decoding circuitry, high-definition tuners, or any other suitable tuning or video circuits or combinations of such circuits. Encoding circuitry (e.g., for converting over-the-air, analog, or digital signals to MPEG signals for storage) may also be provided. Control circuitry **504** may also include scaler circuitry for upconverting and downconverting content into the preferred output format of user equipment **500**. Control circuitry **504** may also include digital-to-analog converter circuitry and analog-to-digital converter circuitry for converting between digital and analog signals. The tuning and encoding circuitry may be used by user equipment device **500**, **501** to receive and to display, to play, or to record content. The tuning and encoding circuitry may also be used to receive guidance data. The circuitry described herein, including for example, the tuning, video generating, encoding, decoding, encrypting, decrypting, scaler, and analog/digital circuitry, may be implemented using software running on one or more general purpose or specialized processors. Multiple tuners may be provided to handle simultaneous tuning functions (e.g., watch and record functions, picture-in-picture (PIP) functions, multiple-tuner recording, etc.). If storage **508** is provided as a separate device from user equipment device **500**, the tuning and encoding circuitry (including multiple tuners) may be associated with storage **508**.

Control circuitry **504** may receive instruction from a user by way of user input interface **510**. User input interface **510** may be any suitable user interface, such as a remote control, mouse, trackball, keypad, keyboard, touch screen, touchpad, stylus input, joystick, voice recognition interface, or other user input interfaces. Display **512** may be provided as a stand-alone device or integrated with other elements of each one of user equipment device **500** and user equipment device **501**. For example, display **512** may be a touchscreen or touch-sensitive display. In such circumstances, user input interface **510** may be integrated with or combined with display **512**. Display **512** may be one or more of a monitor, a television, a display for a mobile device, or any other type of display. A video card or graphics card may generate the output to display **512**. The video card may be any control circuitry described above in relation to control circuitry **504**. The video card may be integrated with control circuitry **504**. Speakers **514** may be provided as integrated with other elements of each one of user equipment device **500** and user equipment system **501** or may be stand-alone units. The audio component of videos and other content displayed on display **512** may be played through the speakers **514**. In some embodiments, the audio may be distributed to a receiver (not shown), which processes and outputs the audio via speakers **514**.

The media application may be implemented using any suitable architecture. For example, it may be a stand-alone application wholly-implemented on each one of user equipment device **500** and user equipment device **501**. In such an approach, instructions of the application are stored locally (e.g., in storage **508**), and data for use by the application is downloaded on a periodic basis (e.g., from an out-of-band feed, from an Internet resource, or using another suitable approach). Control circuitry **504** may retrieve instructions of the application from storage **508** and process the instructions to provide supplemental content as discussed. Based on the processed instructions, control circuitry **504** may determine what action to perform when input is received from user input interface **510**. For example, movement of a cursor on a display up/down may be indicated by the processed instructions when user input interface **510** indicates that an up/down button was selected.

In some embodiments, the media application is a client/server-based application. Data for use by a thick or thin client implemented on each one of user equipment device **500** and user equipment device **501** is retrieved on-demand by issuing requests to a server remote to each one of user equipment device **500** and user equipment device **501**. In one example of a client/server-based guidance application, control circuitry **504** runs a web browser that interprets web pages provided by a remote server. For example, the remote server may store the instructions for the application in a storage device. The remote server may process the stored instructions using circuitry (e.g., control circuitry **511**) to perform the operations discussed in connection with FIGS. **1-4**.

In some embodiments, the media application may be downloaded and interpreted or otherwise run by an interpreter or virtual machine (run by control circuitry **504**). In some embodiments, the media application may be encoded in the ETV Binary Interchange Format (EBIF), received by control circuitry **504** as part of a suitable feed, and interpreted by a user agent running on control circuitry **504**. For example, the media application may be an EBIF application. In some embodiments, the media application may be defined by a series of JAVA-based files that are received and run by a local virtual machine or other suitable middleware executed by control circuitry **504**. In some of such embodiments (e.g., those employing MPEG-2 or other digital media encoding schemes), the media application may be, for example, encoded and transmitted in an MPEG-2 object carousel with the MPEG audio and video packets of a program.

FIG. **6** is a diagram of an illustrative system **600** for associating a current progress point of a media asset with one or more user profiles associated with a media application account, in accordance with some embodiments of this disclosure. User equipment devices **607**, **608**, **610** (e.g., which may correspond to one or more of user equipment device **105** of FIG. **1**, user equipment devices **305**, **309** of FIG. **3**) may be coupled to communication network **606**. Communication network **606** may be one or more networks

including the Internet, a mobile phone network, mobile voice or data network (e.g., a 5G, 4G, or LTE network), cable network, public switched telephone network, or other types of communication network or combinations of communication networks. Paths (e.g., depicted as arrows connecting the respective devices to the communication network **606**) may separately or together include one or more communications paths, such as a satellite path, a fiber-optic path, a cable path, a path that supports Internet communications (e.g., IPTV), free-space connections (e.g., for broadcast or other wireless signals), or any other suitable wired or wireless communications path or combination of such paths. Communications with the client devices may be provided by one or more of these communications paths but are shown as a single path in FIG. **6** to avoid overcomplicating the drawing.

Although communications paths are not drawn between user equipment devices, these devices may communicate directly with each other via communications paths as well as other short-range, point-to-point communications paths, such as USB cables, IEEE 1394 cables, wireless paths (e.g., Bluetooth, infrared, IEEE 702-11x, etc.), or other short-range communication via wired or wireless paths. The user equipment devices may also communicate with each other directly through an indirect path via communication network **606**.

System **600** may comprise media content source **602** and server **604**. In some embodiments, media content source **602** may correspond to server **604** and/or media content source **602** and server **604** may be under the control of or otherwise associated with a media content provider. In addition, there may be more than one of each of media content source **602** and server **604**, but only one of each is shown in FIG. **6** to avoid overcomplicating the drawing. If desired, media content source **602** and server **604** may be integrated as one source device. In some embodiments, the media application may be executed at one or more of control circuitry **611** of server **604** (and/or control circuitry of user equipment devices **607**, **608**, **610**). In some embodiments, database **125** of FIG. **1**, which may correspond to database **325** of FIG. **3**, and associated with data structure **400** of FIG. **4**, may be stored at database **605** maintained at or otherwise associated with server **604**.

In some embodiments, server **604** may include control circuitry **611** and storage **614** (e.g., RAM, ROM, Hard Disk, Removable Disk, etc.). Storage **614** may store one or more databases. Server **604** may also include an input/output path **612**. I/O path **612** may provide device information, or other data, over a local area network (LAN) or wide area network (WAN), and/or other content and data to control circuitry **611**, which may include processing circuitry, and storage **614**. Control circuitry **611** may be used to send and receive commands, requests, and other suitable data using I/O path **612**, which may comprise I/O circuitry. I/O path **612** may connect control circuitry **611** (and specifically control circuitry) to one or more communications paths.

Control circuitry **611** may be based on any suitable control circuitry such as one or more microprocessors, microcontrollers, digital signal processors, programmable logic devices, field-programmable gate arrays (FPGAs), application-specific integrated circuits (ASICs), etc., and may include a multi-core processor (e.g., dual-core, quad-core, hexa-core, or any suitable number of cores) or super-computer. In some embodiments, control circuitry **611** may be distributed across multiple separate processors or processing units, for example, multiple of the same type of processing units (e.g., two Intel Core i7 processors) or multiple different processors (e.g., an Intel Core i5 processor and an Intel Core i7 processor). In some embodiments, control circuitry **611** executes instructions for an emulation system application stored in memory (e.g., the storage **614**). Memory may be an electronic storage device provided as storage **614** that is part of control circuitry **611**.

In some embodiments, server **604** may retrieve guidance data from media content source **602**, process the data as will be described in detail below, and forward the data to user equipment devices **607**, **608**, **610**. Media content source **602** may include one or more types of content distribution equipment including a television distribution facility, cable system headend, satellite distribution facility, programming sources (e.g., television broadcasters, such as NBC, ABC, HBO, etc.), intermediate distribution facilities and/or servers, Internet providers, on-demand media servers, and other content providers. NBC is a trademark owned by the National Broadcasting Company, Inc., ABC is a trademark owned by the American Broadcasting Company, Inc., and HBO is a trademark owned by the Home Box Office, Inc. Media content source **602** may be the originator of content (e.g., a television broadcaster, a Webcast provider, etc.) or may not be the originator of content (e.g., an on-demand content provider, an Internet provider of content of broadcast programs for downloading, etc.). Media content source **602** may include cable sources, satellite providers, on-demand providers, Internet providers, over-the-top content providers, or other providers of content. Media content source **602** may also include a remote media server used to store different types of content (including video content selected by a user), in a location remote from any of the client devices. Media content source **602** may also provide supplemental content relevant to the metadata of a particular scene of a media asset as described above.

Client devices may operate in a cloud computing environment to access cloud services. In a cloud computing environment, various types of computing services for content sharing, storage or distribution (e.g., video sharing sites or social networking sites) are provided by a collection of network-accessible computing and storage resources, referred to as "the cloud." For example, the cloud can include a collection of server computing devices (such as, e.g., server **604**), which may be located centrally or at distributed locations that provide cloud-based services to various types of users and devices connected via a network such as the Internet via communication network **606**. In such embodiments, user equipment devices may operate in a peer-to-peer manner without communicating with a central server.

FIG. **7** is a flowchart of a detailed illustrative process **700** for generating for presentation a media asset starting from a selected pause point, in accordance with some embodiments of this disclosure. In various embodiments, the individual steps of process **700** may be implemented by one or more components of the devices and systems of FIGS. **1-6**. Although the present disclosure may describe certain steps of process **700** (and of other processes described herein) as being implemented by certain components of the devices and systems of FIGS. **1-6**, this is for purposes of illustration only, and it should be understood that other components of the devices and systems of FIGS. **1-6** may implement those steps instead.

At **702**, control circuitry (e.g., control circuitry **611** of server **604** of FIG. **6** and/or control circuitry of user equipment device **105** of FIG. **1**) may monitor user interface inputs received by a media application (e.g., running at user equipment device **105** and/or server **604**) over time. For

example, the control circuitry may determine historical navigation patterns and user interface inputs received during consumption of media assets (e.g., as shown at data structure **400** of FIG. **4**).

At **704**, the control circuitry may determine, based on the monitored user interface inputs, a plurality of user interaction profiles for respective users. For example, the determined historical navigation patterns and user interface inputs may be correlated to respective user interaction profiles (e.g., shown in column **402** of data structure **400** of FIG. **4**). In some embodiments, the media application associated with the user interaction profiles may be a shared account or profile in which users do not have individualized accounts (e.g., discerning between users of the account may not be possible via login credentials or by selecting a particular profile).

At **706**, the control circuitry may receive a request (e.g., via user interface **103** of FIG. **1**) to view a media asset during a consumption session associated with a first user interaction profile (e.g., a profile tracking historical user interface inputs and consumption data of user **102**, which may be transparent to user **102**).

At **708**, the control circuitry may generate for display the media asset (e.g., media asset **126** of FIG. **1**, on user equipment device **105** of FIG. **1**) based on a request from a first user (e.g., user **102** associated with a first user interaction profile). For example, the control circuitry may generate for display the media asset in response to receiving selection of identifier **108**.

At **710**, the control circuitry may receive a pause command (e.g., associated with icon **128** of FIG. **1** provided via user interface **109** of FIG. **1**, such as via a remote control device coupled to user equipment device **105**) to freeze the playing of the media asset (e.g., media asset **126** of FIG. **1**) at pause point **124**.

At **712**, in response to receiving the pause command, the control circuitry may cause an indication of pause point **124** to be stored (e.g., in association with the first interaction user profile at database **125** of FIG. **1**) in association with a time stamp of the media asset when the pause command is received. In some embodiments, metadata associated with the partially consumed media asset and/or user interface inputs associated with the current consumption session may be stored in connection with the pause point.

At **714**, the control circuitry may receive another request to view the media asset (e.g., media asset **126** of FIG. **1**, on user equipment device **105** of FIG. **1** or any other suitable device) during a consumption session associated with a second user interaction profile. The request may be received from a second user (e.g., user **104** of FIG. **1**), and the consumption session may be associated with the same user account or profile as the first consumption session associated with the first user, but occurring subsequent in time to such first consumption session.

At **716**, the control circuitry may generate for display the media asset (e.g., the same media asset associated with the stored pause point of the first consumption session, media asset **126** of FIG. **1**, for display on user equipment device **105** of FIG. **1** or any other suitable device) based on a request from the second user.

At **718**, the control circuitry may receive a pause command (e.g., associated with icon **128** provided by user interface **111** of FIG. **1**, such as via a remote control device coupled to user equipment device **105**) to freeze the playing of the media asset (e.g., media asset **126** of FIG. **1**) at pause point **130**. Pause point **130** may correspond to a different location within media asset **126** than stored pause point **124**.

At **720**, in response to receiving the pause command at **718**, the control circuitry may cause an indication of pause point **130** to be stored (e.g., in association with the second interaction user profile at database **125** of FIG. **1**) in association with a time stamp of the media asset when the pause command is received. In some embodiments, metadata associated with the partially consumed media asset and/or user interface inputs associated with the current consumption session may be stored in connection with the pause point.

At **722**, the control circuitry may receive a request to access the media asset (e.g., media asset **126** of FIG. **1**, on user equipment device **105** of FIG. **1** or any other suitable device) during a current consumption session, occurring after the first and second consumption sessions respectively associated with pause point **124** and **130**. Such request may be received from, e.g., user **102** or user **104** of FIG. **1**, although the control circuitry may not be able to determine which user is associated with the current consumption session based on login credentials alone, since users **102** and **104** may each access a single shared account or profile.

At **724**, the control circuitry may identify user interface inputs received during the current consumption session. For example, the control circuitry may determine that the request received at **722** is associated with selecting identifier **108** from media category **116**, or the control circuitry may determine that the request received at **722** is associated with selecting identifier **108** based on a search query received at portion **120** of user interface **107**. In some embodiments, the control circuitry may take into account any number of suitable inputs or interactions, e.g., the various attributes shown in data structure **400** of FIG. **4**.

At **726**, the control circuitry may compare the identified user interface inputs received during the current consumption session to user interface inputs associated with the first user interaction profile and second user interaction profile, e.g., stored in association with data structure **400** of FIG. **4**. In some embodiments, the control circuitry may generate respective confidence scores based on a degree of similarity between the identified user interface inputs and the stored user interface inputs for each of the first user interaction profile (e.g., associated with user **102**) and the second user interaction profile (e.g., associated with user **104**).

At **728**, the control circuitry may determine whether the identified user interface inputs match the first or second user interaction profile. In some embodiments, the control circuitry may perform the determination by selecting the user interaction profile having the higher confidence score as an indicator of a match. In some embodiments, the control circuitry may determine there is a match only if a particular user interaction profile is associated with a confidence score that exceeds a certain predefined threshold (e.g., 50%), and may select the user interaction profile having the higher confidence score if each confidence score exceeds the threshold.

At **730**, the control circuitry may, in response to determining that neither of the first user interaction profile or the second user interaction profile constitutes a match, generate for display the media asset (e.g., media asset **126** of FIG. **1**, on user equipment device **105** of FIG. **1** or any other suitable device) from the beginning. The control circuitry may perform this action based on the inference that the user of the current consumption session may be a new user, since the detected user interface inputs do not correspond to historical data of the user interaction profiles. In some embodiments, the control circuitry may provide a prompt asking the user whether he or she previously viewed the media asset, and in

response to receiving an affirmative selection, present preview of stored pause points to the user, such as described in the example illustrated in FIG. **3**.

At **732**, the control circuitry may select the first or second pause point based on identified user interface inputs matching the first user interaction profile or the second profile. For example, the control circuitry may select the first pause point (e.g., pause point **124** of FIG. **1**) in response to determining that the comparison at **726** results in a match between the first user interaction profile and the user interface inputs of the current consumption session.

At **734**, the control circuitry may generate for display the media asset (e.g., media asset **126** of FIG. **1**, on user equipment device **105** of FIG. **1** or any other suitable device) from the selected pause point (e.g., pause point **124**). In some embodiments, such generating for display may be performed automatically. In some embodiments, the user may be prompted to confirm to begin playing of the media asset at the selected pause point.

FIG. **8** is a flowchart of a detailed illustrative process for generating for presentation a media asset starting from a selected pause point, in accordance with some embodiments of this disclosure. In various embodiments, the individual steps of process **800** may be implemented by one or more components of the devices and systems of FIGS. **1-6**. Although the present disclosure may describe certain steps of process **800** (and of other processes described herein) as being implemented by certain components of the devices and systems of FIGS. **1-6**, this is for purposes of illustration only, and it should be understood that other components of the devices and systems of FIGS. **1-6** may implement those steps instead.

At **802**, control circuitry (e.g., control circuitry **611** of server **604** of FIG. **6** and/or control circuitry of user equipment device **105** of FIG. **1**) may perform **726** of FIG. **7**, to compare identified user interface inputs received during the current consumption session to user interface inputs associated with the first user interaction profile and the second user interaction profile.

At **804**, the control circuitry may determine confidence scores indicative of whether a match exists with the first user interaction profile or the second user interaction profile. For example, the control circuitry may monitor user inputs with user interface **103** to determine values for one or more of the attributes shown in columns **402-422** of FIG. **4**, and compare each value to respective values for such attributes associated with the first user interaction profile and the second user interaction profile.

At **806**, the control circuitry may determine whether the computed confidence scores associated with the first interaction profile and the second interaction profile exceed a first threshold (e.g., 75%). In response to determining one or more of the computed confidence scores exceed the first threshold, processing may proceed to **808**. On the other hand, in response to determining one or more of the computed confidence scores do not exceed the first threshold, processing may proceed to **812**.

At **808**, the control circuitry may select a pause point (e.g., pause point **124** of FIG. **1**) associated with a user interaction profile that is associated with the confidence score exceeding the first threshold. If each of the computed confidence scores associated with the first interaction profile and the second interaction profile exceeds the first threshold, the control circuitry may choose the higher of the two scores.

At **810**, the control circuitry may pre-fetch a portion of the media asset (e.g., media asset **126** of FIG. **1**, on user equipment device **105** of FIG. **1** or any other suitable device) from the selected pause point (e.g., pause point **124** of FIG. **1**). For example, the control circuitry may pre-fetch any suitable number of segments from a manifest of the media asset, to buffer such segments in anticipation of the user resuming the media asset from the selected pause point. At **816**, the control circuitry may decline to present preview frames associated with the selected pause point, based on the fact that the relatively high confidence score (e.g., exceeding the first threshold) associated with the selected pause point indicates a high level of certainty that the selected pause point is correctly matched to the user interaction profile associated with the current consumption session.

At **812**, the control circuitry may, in response to determining that neither of the computed confidence scores exceeds the first threshold, determine whether one or more of the confidence scores exceed the second threshold (e.g., 50%). If the control circuitry determines that neither of the computed confidence scores exceeds the first threshold, processing may proceed to **726** of FIG. **7**. On the other hand, if the control circuitry determines that at least one of the computed confidence scores exceeds the first threshold, processing may proceed to **818**.

At **818**, the control circuitry may select a pause point (e.g., pause point **124** of FIG. **1**) associated with a user interaction profile that is associated with the confidence score exceeding the second threshold (e.g., 50%). If each of the computed confidence scores associated with the first interaction profile and the second interaction profile exceeds the second threshold, the control circuitry may choose the higher of the two scores.

At **820**, the control circuitry may present preview frames associated with the selected pause point (e.g., pause point **124** of FIG. **1**). For example, the control circuitry may generate for display user interface **201** of FIG. **2** depicting multiple pause points and corresponding preview frames for media asset **126**. At **820**, user interface **205** may be generated for presentation by the control circuitry to depict each pause point, and respective previews, of each media asset in media asset collection **226** (e.g., the episodic series "Outer Banks").

At **822**, the control circuitry may receive user selection to being the media asset (e.g., media asset **126** of FIG. **1**, on user equipment device **105** of FIG. **1** or any other suitable device) from the selected pause point. In some embodiments, such confirmation from the user may be be presented only if the confidence score is below the second threshold, or such confirmation from the user may not be received at all, e.g., the media asset may be automatically generated for display from the selected pause point. **824** may be performed in a similar manner to **734** of FIG. **7**.

FIG. **9** is a flowchart of a detailed illustrative process **900** for associating a current progress point of a media asset with one or more user profiles associated with a media application account, in accordance with some embodiments of this disclosure. In various embodiments, the individual steps of process **900** may be implemented by one or more components of the devices and systems of FIGS. **1-6**. Although the present disclosure may describe certain steps of process **900** (and of other processes described herein) as being implemented by certain components of the devices and systems of FIGS. **1-6**, this is for purposes of illustration only, and it should be understood that other components of the devices and systems of FIGS. **1-6** may implement those steps instead.

At **902**, control circuitry (e.g., control circuitry **611** of server **604** of FIG. **6** and/or control circuitry of user equipment device **105** of FIG. **1**) may determine that a plurality

of user profiles (e.g., profiles **321**, **323** of FIG. **3**) are associated with an account of a media application, e.g., a shared account having common login credentials, where multiple users may be permitted to maintain personalized profiles that track each user's user interface inputs, navigation history and historical consumption habits.

At **904**, the control circuitry may receive a request (e.g., from user **302** of FIG. **3**, via user interface **303** provided by the media application) to view a media asset (e.g., media asset **326** of FIG. **3**) during a first consumption session (e.g., associated with the first user **302**) associated with the media account. The first consumption session may correspond to a group watching session, such as, for example, where users **302** and **304**, each associated with a respective user profile, are consuming one or more media assets in a group consumption session.

At **906**, the control circuitry may generate for presentation the media asset (e.g., media asset **326** of FIG. **3**) during the first consumption session associated with the account.

At **908**, the control circuitry may generate for presentation a selectable option (e.g., selectable option **331** of FIG. **3**) to associate a current progress point (e.g., progress point **324** of FIG. **3**) of the media asset with one or more of the plurality of user profiles (e.g., user profile **323**) associated with the account.

At **910**, control circuitry may receive a selection (e.g., an affirmative selection of "Yes" in connection with user profile **323** of FIG. **3**) of one or more of the user profiles via the selectable option (e.g., selectable option **331** of FIG. **3**). In some embodiments, the selectable option may be presented in a manner that enables a user to select multiple user profiles at once with which to associate the progress point (e.g., progress point **324** of FIG. **3**). For example, the selectable option may comprise an overlay or pop-up showing each user profile of the media account and corresponding user interface portions that enable a user to select the desired number of user profiles. In some embodiments, the control circuitry may cause the selectable option to be displayed on a second screen device (e.g., user device **309** of FIG. **3**), and selection may be received at such device and transmitted to user equipment device **305** and/or server **604** for processing.

At **912**, the control circuitry may, during a second consumption session, receive a request for accessing the media asset (e.g., media asset **326** of FIG. **3**). For example, the second consumption session may be associated with user **304**, and may occur at a later time than the first consumption session. The request for accessing the media asset may be received by detecting, via user interface **307**, user selection of identifier **308**.

At **914**, the control circuitry may determine that the second consumption session is associated with the selected one or more user profiles. For example, the control circuitry may compare the selected one or more user profiles (e.g., user profile **323**, associated with an indication of progress point **324** of FIG. **3**, in data structure **400** of FIG. **4**, by way of selectable option **331** of FIG. **3**) to the user profile selected during the second user consumption session to determine whether there is a match. If, however, at **914**, the control circuitry determines that the second consumption decision is not associated with a particular profile, processing may proceed to **920**.

At **916**, in response to determining that the selected one or more user profiles matches the user profile of the second consumption session, the control circuitry may retrieve an indication of the progress point (e.g., from column **406** of FIG. **4**) and request the media asset (e.g., from server **604** of FIG. **6**) from the progress point.

At **918**, the control circuitry may resume the media asset (e.g., media asset **326** of FIG. **3**) from the progress point associated with the selectable option (e.g., progress point **324** of FIG. **3**). In some embodiments, such resumption may be performed automatically, or in response to receiving a confirmatory input from the user.

At **920**, the control circuitry may generate for display the media asset (e.g., media asset **326** of FIG. **3**) from the beginning, e.g., since no progress points are determined to be associated with the particular media asset for the current user profile, the user may be determined to have not yet consumed the media asset during any other consumption session.

FIG. **10** is a flowchart of a detailed illustrative process **1000** for determining whether to present a selectable option to associate a current progress point of a media asset with one or more user profiles associated with a media application account, in accordance with some embodiments of this disclosure. In various embodiments, the individual steps of process **1000** may be implemented by one or more components of the devices and systems of FIGS. **1-6**. Although the present disclosure may describe certain steps of process **1000** (and of other processes described herein) as being implemented by certain components of the devices and systems of FIGS. **1-6**, this is for purposes of illustration only, and it should be understood that other components of the devices and systems of FIGS. **1-6** may implement those steps instead.

At **1002**, control circuitry (e.g., control circuitry **611** of server **604** of FIG. **6** and/or control circuitry of user equipment device **105** of FIG. **1**) may determine whether user input indicating at least one user needs to stop consuming the media asset is received. For example, user interface **303** provided by the media application at user equipment device **305** may provide a prompt for user **302** to indicate one or more other users participating in the current consumption session. In the absence of such input, processing may proceed to **1004**. Otherwise, processing may proceed to **908** of FIG. **9**, to provide a selectable option to the user to associate the progress point (e.g., progress point **324** of FIG. **3**) with one or more profiles.

At **1004**, the control circuitry may determine, based on sensor data, whether at least one user previously in the vicinity of user equipment device is leaving the vicinity of the user equipment device. For example, the control circuitry may receive sensor data from a camera, and process such sensor data, e.g., to perform facial recognition techniques to identify users in the captured image, such as by comparing extracted facial features from the image to facial features of an image of a user stored in association with a user profile of the account). Any suitable biometric sensor or other sensor may be used to ascertain the presence of a user (e.g., user **304**) in the vicinity of the user equipment device (e.g., user equipment device **305**), and the subsequent exiting of such user from the vicinity. In response to an affirmative determination at **1004**, processing may proceed to **908** of FIG. **9**. Otherwise, processing may proceed to **1006**.

At **1006**, the control circuitry may determine, based on one or more user profiles (e.g., stored at data structure **400** of FIG. **4**), whether multiple users are likely to be viewing the media asset. For example, if the control circuitry determines that user **304** recently viewed the prior episode of media asset **326** (e.g., at a similar time to the current time), the control circuitry may determine that user **304** is likely to be consuming media asset **326** with user **302** in a group session. In response to an affirmative determination at **1004**,

processing may proceed to **908** of FIG. **9**. Otherwise, processing may proceed to **1008**.

At **1008**, the control circuitry may decline to generate for presentation the selectable option (e.g., selectable option **331** of FIG. **3**). **1008** may be performed based on a determination that there is a lack of any indicators that user **302** is accompanied by any other users having user profiles associated with the user account of the media application, and thus there may be no need to provide the selectable option to associate a progress point with another profile.

FIG. **11** is a flowchart of a detailed illustrative process for storing a new pause point with a preview, in accordance with some embodiments of this disclosure. In various embodiments, the individual steps of process **1100** may be implemented by one or more components of the devices and systems of FIGS. **1-6**. Although the present disclosure may describe certain steps of process **1100** (and of other processes described herein) as being implemented by certain components of the devices and systems of FIGS. **1-6**, this is for purposes of illustration only, and it should be understood that other components of the devices and systems of FIGS. **1-6** may implement those steps instead.

At **1102**, control circuitry (e.g., control circuitry **611** of server **604** of FIG. **6** and/or control circuitry of user equipment device **105** of FIG. **1**) may receive input requesting access to a media asset (e.g., media asset **126** of FIG. **1**, such as by way of selecting identifier **108**). At **1104**, the control circuitry may determine whether the user profile or user account associated with the current consumption session stores an indication of one or more pause points for the requested media asset. If yes, processing may proceed to **1108**; otherwise, processing may proceed to **1106**. At **1106**, the control circuitry may cause the media asset to be generated for display from the beginning. At **1108**, the control circuitry may provide a prompt to the user requesting confirmation of a particular pause point from which the media asset should be resumed. Alternatively, the media asset may be automatically resumed from a predicted pause point, using the techniques discussed in connection with FIG. **1**.

At **1110**, the control circuitry may play the media asset from the selected pause position (e.g., pause position **124** of media asset **126** of FIG. **1**). At **1112**, the control circuitry may detect that during the current consumption session, a pause command has been received, the device being used to consumed the media asset has been turned off (e.g., user equipment **105** of FIG. **1**) or the user exited out of the media application or otherwise ceased consumption of the media asset. At **1114**, the control circuitry may remove the selected pause point (e.g., pause point **124**) from storage and overwrite or replace such pause point with a new pause point corresponding to the point of the media asset at which the user ceased access of the media asset at **1112**. At **1116**, the control circuitry may store such new pause point (e.g., at storage **614** of server **604** of FIG. **6**) based on such detecting that playing of the media asset paused or stopped at **1112**, and generate a preview (e.g., a 4-10 second clip) of one or more frames associated with the new pause point.

The processes discussed above are intended to be illustrative and not limiting. One skilled in the art would appreciate that the steps of the processes discussed herein may be omitted, modified, combined and/or rearranged, and any additional steps may be performed without departing from the scope of the invention. More generally, the above disclosure is meant to be illustrative and not limiting. Only the claims that follow are meant to set bounds as to what the present invention includes. Furthermore, it should be noted that the features and limitations described in any one embodiment may be applied to any other embodiment herein, and flowcharts or examples relating to one embodiment may be combined with any other embodiment in a suitable manner, done in different orders, or done in parallel. In addition, the systems and methods described herein may be performed in real time. It should also be noted that the systems and/or methods described above may be applied to, or used in accordance with, other systems and/or methods.

What is claimed is:

1. A computer-implemented method comprising:

determining that a plurality of user profiles are associated with an account of a media application;

generating for presentation a media asset during a first consumption session associated with the account, wherein the first consumption session is initiated by a first user of a first user profile of the plurality of user profiles;

receiving, at a particular progress point of the media asset, a pause command;

in response to pausing the presentation of the media asset at the particular progress point based on the received pause command:

generating for presentation a list comprising a plurality of indicators of the plurality of user profiles, respectively, associated with the account, wherein selection of one of the plurality of indicators causes the particular progress point of the media asset to be associated with a user profile corresponding to the selected indicator; and

receiving a selection of a particular indicator, of the plurality of indicators, that corresponds to a second user profile of the plurality of user profiles;

based on receiving the selection of the particular indicator corresponding to the second user profile, associating the second user profile with the particular progress point;

during a second consumption session, receiving a request for accessing the media asset; and

in response to determining that the second consumption session is initiated by a second user of the second user profile having been associated with the particular progress point, resuming presentation of the media asset from the particular progress point.

2. The method of claim **1**, further comprising:

in response to receiving the request for accessing the media asset and determining that the second consumption session is initiated by the second user of the second user profile, providing a selectable option to resume the media asset from the particular progress point.

3. The method of claim **1**, wherein the media asset is generated for presentation on a first device, and the list of the plurality of indicators is generated for presentation on the first device.

4. The method of claim **1**, wherein the media asset is generated for presentation on a first device, and the list of the plurality of indicators is generated for presentation on a second device in a vicinity of the first device.

5. The method of claim **1**, further comprising:

determining that the first and second users respectively associated with the first and second user profiles of the plurality of user profiles are consuming the media asset during the first consumption session.

6. The method of claim **5**, wherein determining that the first and second users respectively associated with the first

and second user profiles of the plurality of user profiles are consuming the media asset during the first consumption session comprises:

determining that the first user of the first user profile initiated the first consumption session; and

determining that the second user profile comprises an indication that media assets related to the media asset of the first consumption session were previously consumed.

7. The method of claim **5**, wherein determining that the first and second users respectively associated with the first and second user profiles of the plurality of user profiles are consuming the media asset during the first consumption session comprises:

determining, based on sensor data, that the first and second users associated with the first user profile and a second user profile, respectively, are consuming the media asset during the first consumption session.

8. The method of claim **5**, wherein determining that the first and second users respectively associated with the first and second user profiles of the plurality of user profiles are consuming the media asset during the first consumption session comprises:

receiving input indicating that the first and second users associated with the first user profile and the second user profile, respectively, are consuming the media asset during the first consumption session.

9. The method of claim **1**, further comprising:

determining that a user associated with a particular user profile, of the plurality of user profiles, is not consuming the media asset during the first consumption session; and

in response to determining that the user associated with the particular user profile is not consuming the media asset during the first consumption session, declining to generate for presentation an indicator for the particular user profile in the list.

10. The method of claim **9**, wherein determining that the user associated with the particular user profile is not consuming the media asset during the first consumption session comprises:

determining that media assets indicated in the particular user profile are not related to the media asset being consumed during the first consumption session.

11. A computer-implemented system comprising:

memory;

control circuitry configured to:

determine that a plurality of user profiles, stored in the memory, are associated with an account of a media application;

generate for presentation a media asset during a first consumption session associated with the account, wherein the first consumption session is initiated by a first user of a first user profile of the plurality of user profiles;

receive, at a particular progress point of the media asset, a pause command;

in response to pausing the presentation of the media asset at the particular progress point based on the received pause command:

generate for presentation a list comprising a plurality of indicators of the plurality of user profiles, respectively, associated with the account, wherein selection of one of the plurality of indicators causes the particular progress point of the media asset to be associated with a user profile corresponding to the selected indicator;

receive a selection of a particular indicator, of the plurality of indicators, that corresponds to a second user profile of the plurality of user profiles;

based on receiving the selection of the particular indicator corresponding to the second user profile, associate the second user profile with the particular progress point;

during a second consumption session, receive a request for accessing the media asset; and

in response to determining that the second consumption session is initiated by a second user of the second user profiles having been associated with the particular progress point, resume presentation of the media asset from the particular progress point.

12. The system of claim **11**, wherein the control circuitry is further configured to:

in response to receiving the request for accessing the media asset and determining that the second consumption session is initiated by the second user of the second user profile, provide a selectable option to resume the media asset from the particular progress point.

13. The system of claim **11**, wherein the control circuitry is configured to generate for presentation the media asset on a first device, and generate for presentation the list of the plurality of indicators on the first device or on a second device in a vicinity of the first device.

14. The system of claim **11**, wherein the control circuitry is further configured to:

determine that the first and second users respectively associated with the first and second user profiles of the plurality of user profiles are consuming the media asset during the first consumption session.

15. The system of claim **14**, wherein the control circuitry is further configured to determine that the first and second users respectively associated with the first and second user profiles of the plurality of user profiles are consuming the media asset during the first consumption session by:

determining that the first user of the first user profile initiated the first consumption session; and

determining that the first user of the second user profile comprises an indication that media assets related to the media asset of the first consumption session were previously consumed.

16. The system of claim **14**, wherein the control circuitry is configured to determine that the first and second users respectively associated with the first and second user profiles of the plurality of user profiles are consuming the media asset during the first consumption session by:

determining, based on sensor data, that the first and second users associated with the first user profile and a second user profile, respectively, are consuming the media asset during the first consumption session.

17. The system of claim **14**, wherein the control circuitry is configured to determine that the first and second users respectively associated with the first and second user profiles of the plurality of user profiles are consuming the media asset during the first consumption session by:

receiving input indicating that the first and second users associated with the first user profile and the second user profile, respectively, are consuming the media asset during the first consumption session.

18. The system of claim **11**, wherein the control circuitry is further configured to:

determine that a user associated with a particular user profile, of the plurality of user profiles, is not consuming the media asset during the first consumption session; and

in response to determining that the user associated with the particular user profile is not consuming the media asset during the first consumption session, decline to generate for presentation an indicator for the particular user profile in the list.

19. The system of claim **18**, wherein the control circuitry is further configured to determine that the user associated with the particular user profile is not consuming the media asset during the first consumption session by:

determining that media assets indicated in the particular user profile are not related to the media asset being consumed during the first consumption session.

20. A computer-implemented method comprising:

determining that a plurality of user profiles are associated with an account of a media application;

generating for presentation a media asset during a first consumption session associated with the account, wherein the first consumption session is initiated by a first user of a first user profile of the plurality of user profiles, and a second user of a second user profile of the plurality of user profiles is present at the first consumption session;

determining, at a particular progress point of the media asset and based on sensor data, that the second user is exiting a vicinity of a computing device at which the media asset is being generated for presentation during the first consumption session;

in response to determining that the second user is exiting the vicinity of the computing device:

generating for presentation a list comprising a plurality of indicators of the plurality of user profiles, respectively, associated with the account, wherein selection of one of the plurality of indicators causes the particular progress point of the media asset to be associated with a user profile corresponding to the selected indicator; and

receiving a selection of a particular indicator, of the plurality of indicators, that corresponds to the second user profile;

based on receiving the selection of the particular indicator corresponding to the second user profile, associating the second user profile with the particular progress point;

during a second consumption session, receiving a request for accessing the media asset; and

in response to determining that the second consumption session is initiated by the second user of the second user profile having been associated with the particular progress point, resuming presentation of the media asset from the particular progress point.

* * * * *